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## THE SENEGA OF COMMERCE.

By J. U. and C. G. Lloyd.

Read at Kansas City, Mo., before the American Pharmaceutical Association and communicated by the authors.

The species of Polygala that should yield senega, and which is officinal, is Polygala senega, *Lin.* The localities referred to by the authors of our dispensatories and other writers as furnishing the senega of commerce are the Southern and Western States. Such States of the South and West as furnish senega for the market, and which fact is personally known to us, are Kentucky, Virginia, Tennessee, North Carolina, Arkansas, Missouri, Ohio, Indiana and Illinois.

Doubtless small amounts of senega are also derived from the northern portions of other Southern States and from portions of certain Northern and Eastern States that border the States we have named. In fact the typical species (Polygala senega, *Lin.*) is most common in the Eastern States, and the root of this agrees in appearance and characteristics with senega of the South and West. It has been uniformly the case that all lots of senega examined by ourselves, and which came direct from diggers or first hands from the States mentioned, agree with the accepted descriptions. In connection with the history of this drug, we have made it an object during the past few years to consult brokers and dealers in indigenous drugs throughout the portions of our country that we have named. Their reports confirm, without exception, the above, such senega being known by drug brokers as "Southern senega." In connection with this part of our subject, we beg leave to call attention to the specimen of Polygala senega, var. latifolia, *Lin.*, of our herbarium which was collected in Kentucky by ourselves and about twenty-five miles south of Cincinnati. This we know to yield a root identical with the officinal and about the same in size and is *Southern senega.* Senega from all the senega-producing States that we have named agrees in appearance, and as the bulk of it

is derived from States south of the Ohio river, the term "Southern senega" has been accepted as applicable to the drug that answers the description and authorities accept as officinal senega. The States of Ohio, Indiana and Illinois were once Western States. Since, the *West* has moved far beyond, and thus it is that even in Cincinnati, once a Western city, the senega which is derived from these States is called by dealers "Southern senega." This senega reaches our city (Cincinnati) in parcels of from a few pounds to bales of one or two hundred pounds. It comes from country stores and direct from the gatherer. Sometimes it is nice and clean, again it is scarcely washed at all and frequently is gathered with the top attached and in this manner sent to market. Owing to the high price, it is not so liable to admixtures as cheaper roots, but it is not unusual to find others of our indigenous roots mixed with it. There have been several articles written upon this subject in our journals at home and abroad, so that it is not necessary for us to dwell upon this phase of the question other than to say that we believe the larger share of these admixtures to result from carelessness with the digger, rather than from any intention to adulterate. In concluding our remarks upon Southern senega, we call attention to the specimens which accompany—derived as follows: Nos. 1 and 2 from Kentucky and No. 3 from Indiana.

*Northern Senega.*—Let us bear in mind that the original senega root, and all that was used until about ten years ago, was derived from the sections of country that we have named.[1] To produce it, the typical species, Polygala senega, *Lin.*, and Polygala senega, var. *latifolia*, are gathered indiscriminately. Until a few years ago, there was no reason for a division of the senegas of commerce. Now, however, dealers in senega speak of "Northern Senega," the distinction being brought about by the appearance in market of a root unlike the original, such being derived from the Northwest, about the 44th degree of latitude, and from the States of Wisconsin and Minnesota. The first consignments of this senega that we have been able to trace were noted about ten years ago. It is very large, sometimes white, again rather dark brown. The knot at the top of the root, from which spring the stems, is often two or three inches in diameter, even of the dried plant. The root, just below the knotty head, is (when dry)

[1] The typical Polygala senega, *Lin.*, is native to the eastern portions of the United States; however it does not seem to be in abundance sufficient to repay gathering. L.

from the size of the little finger to that of the thumb of a man. It is from six to ten inches in length and generally destitute of the keel-like ridge which is so marked a characteristic of Southern senega. The root of this Northwestern variety is not so contorted and branched as that of the Southern senega, being large and fleshy. It has the relationship appearance, however, of the Polygalas, the odor and taste of senega and occasionally (the exception) more or less of the keel-like ridge. The first notice that we can find in print regarding this senega is that of Mr. Wm. Saunders, in the Proceedings of the American Pharmaceutical Association, 1876. Since that day the drug has become familiar in the market, commanding about five cents less per pound than the Southern senega. It has been examined microscopically by Mr. Thomas Greenish ("Am. Journ. Pharm.," 1878) and by Mr. George Goebel, Jr. ("Am. Journ. Pharm.," 1881).[1] Prof. J. M. Maisch has been interested in this large senega for some years, and once traced a lot of it to Missouri. We have known of one lot that came from St. Louis, Mo., but we question very much if it grew in that State. Doubtless it came, via St. Louis, from its home in the Northwest.

In connection with the history of this drug, we may say that while its origin has been a matter of doubt, and all endeavors to locate it botanically have heretofore failed, we are convinced that dealers have had no reason to preserve silence or secrecy other than for the protection of their interests as tradesmen. It seems to us, however, that the uncertainty regarding the drug has so acted as to unsettle the price, for it has ever been a questionable root and many persons refused to accept it.

Last winter, Mr. W. W. Moser, of Cincinnati, offered to procure for us the entire plant when in season. Mr. Moser is an extensive dealer in indigenous medicinal plants and has been in the business for twenty-five years or more and handles considerable quantities of Northern and of Southern senega. According to promise, Mr. Moser procured from parties that gather the Northern senega (either in Wiscon-

[1] We take it for granted that the senega these gentlemen examined was the "Northern," as it is the only senega that we are acquainted with that answers the description they give and which is obtainable on the market. Mr. Goebel, it is true, speaks of it as "Southern senega," but we think this simply a confusion of terms and that the drug was likely the regular Northern senega. L.

sin or in Minnesota) a specimen of the plant, and we present it (specimen No. 7). It will be noticed that the root of this one plant is larger in size than the average of the Southern senega, but smaller than the average of the Northern senega. The keel-like ridge exists only for a short distance from the top, and the general appearance of the root is that of the Northern senega of commerce. We call attention now to the plant with root attached, which is fresh from one of the localities which supplies the large senega of commerce. This specimen was furnished us by Messrs. Huber & Co., of Fond du Lac, Wisconsin, a firm that is known over our entire country for its dealings in indigenous drugs. They are first hands for Northern senega, in which they have an extensive trade, therefore the genuineness of these specimens cannot be questioned. The letter which we hold from Mr. Huber is of interest in connection with the habit of this senega and the past and future history of the drug. It was written in reply to one we wrote asking for information on these points, and we present it to the Association with Mr. Huber's permission.

"DEAR SIR:—In answer to your favor of the 10th inst., would say that senega in our State is already scarce and will in a few years become nearly extinct. The advance of civilization and the introduction of domestic animals is rapidly exterminating many of our indigenous medicinal plants of our native forests and open prairies, among which senega is one of the most important. Our shipments this year will not exceed ten tons.

"It inhabits or grows on high rolling prairies or open timber. We have not found it in forests nor in swamps. We have made several attempts to cultivate it. We have a few plants growing; but, on the whole, we met with but little success. We are, however, of the opinion that it could be cultivated if the habits of the plant and the natural laws that govern its growth were thoroughly understood."

Both this and the plant obtained from Mr. Moser are Polygala senega, *Lin.*, of a variety that seems to be intermediate between the typical species (Polygala senega, *Lin.*) and the Polygala senega, var. *latifolia*. It has narrower leaves than the variety native to the South (see specimen from Kentucky of Polygala senega, var. *latifolia* in our herbarium), but the leaves are not so narrow as those of the typical form of the plant, a specimen—from Vermont—of which can also be seen in the herbarium. It agrees exactly with a specimen in our herbarium, to which we call attention, derived from Chicago; and which is also intermediate between the typical species of Polygala senega and var. *latifolia*.[1]

[1] We invite attention to the lots of senega root which we present and which were obtained direct from the States of Minnesota and Wisconsin. L.

Thus it follows that the plant which has created such a disturbance is botanically the officinal senega. The rich black soil and the climate of portions of those Northwestern States seems to be so well adapted to this plant that it grows luxuriantly and so as to far exceed in size anything we have ever before known from any species of Polygala of our country and to somewhat alter its appearance and the internal structure of the root. This fact has led us to question the authenticity of the drug, to think that perhaps the large senega was derived from some other species of Polygala, or even from another genus.[1]

*Remarks.* — The Northern senega is known as "false senega," "white senega," and in one or two instances has been called "Southern senega." Regarding these points, we find that as it is derived from the officinal species, it is *not* "false senega." The term "white senega" is not appropriate, for it is often dark brown (see specimen 6) and in color it does not differ more than other senegas of the market, as can be seen by referring to the two lots of senega we present from Kentucky. The expression "Southern senega" is not admissible, for it does not come from the South and, upon the contrary, the most of the regular senega of olden time *was* from the South. Undoubtedly, therefore, the large senega will continue to be known by dealers as *Northern senega* or as *large senega.*

Since the foregoing was written, Prof. Maisch contributed an article ("Am. Journ. Pharm.," Aug., 1881, p. 387) on a specimen of senega which he obtained from Alabama and which he thought likely might furnish the large senega of commerce. This Southern species, the Polygala Boykinii, *Nutt.*, is the only native species that, to our knowledge, approaches in size the Polygala senega, *Lin.* We exhibit it in our herbarium, and by a comparison with the other species this fact becomes apparent. However, we do not think that it is gathered for market unless the root, as a rule, resembles the officinal senega. We are convinced that it never passes through the hands of Cincinnati dealers, for all "Southern senega" is of the form we present and have described.

[1] We have planted specimens of this Northern senega and shall endeavor to cultivate the same in localities that furnish the Southern senega, to find if the size of the root is simply due to the influence of soil and climate. It may be that the plant does not differ enough from the typical species and the var. *latifolia* to induce botanists to recognize it as a distinct variety, but that the unusually large size of the root is permanent and will be preserved even in other than its native situations. L.

REMARKS BY THE EDITOR.—The evidences presented in the above paper, that what hitherto we have called *false senega* is really derived from Polygala senega, is very strong, and the facilities enjoyed by the authors of examining drugs in large quantities are such that their statement regarding the large size of this senega root is doubtless correct. Yet, although we have been supplied with samples from perhaps twenty different parties, we have seen it only of about the same size as the ordinary senega, and never unusually large.

On the other hand, we have seen only one specimen of the root of Polygala Boykinii and, although this is smaller than ordinary senega, it agrees in its histological relations so well with the so-called false senega, that it might well be collected for the latter *if attaining the same size.* Indeed, the uniform development of the woody centre and the absence of the inner bark tissue, forming the keel, is so constant that it may be questioned whether a plant with such a strikingly different root will not show other differences—aside from the width of the leaves—which may entitle it to be ranked as a species rather than as a variety.

Five years ago we traced what was called "white senega" to Greene county, Mo., and we have no reason to doubt the correctness of the information then obtained. If correct, the root could not have been gathered in Wisconsin. Since that time we have frequently been informed, on inquiry, that the root referred to had been collected in Missouri or in Texas.

It is evident from the above that the histological examination of the roots of well authenticated species of the American Polygalas is a matter of great interest and importance, and pharmacists and physicians who are in a position to aid in this investigation, by the collection of representative specimens of plants with roots, could thus materially further the object in view.

Since the above was in type we have received from Mr. A. Conrath a number of fresh plants, collected in the Menomonee valley, Milwaukee county, Wisconsin, having leaves like those of the intermediate variety described by Messrs. Lloyd. All the roots are small like ordinary good senega, and, as far as examined, show the one-sided growth and even the rayed character of the wood, when seen upon transverse section; even the keel is indicated in several branches in their fresh state. In fact it is unmistakably ordinary senega. We shall examine these roots carefully at our leisure.

## SILPHIUM LACINIATUM, LIN., ROSIN WEED.

Natural order, *Compositæ;* Sub-order, *Tubuliflorœ;* Sub-tribe, *Melampodineœ.*

BY LEMUEL IORWERTH MORRIS, PH.G.

*From an Inaugural Essay.*

Rosin weed, or compass plant, is found growing extensively westward from Ohio, between 38° to 46° north latitude.

The stem is usually three to six, but sometimes reaches the height of ten feet, and bears, along its entire length, leaves similar to the radical, but gradually becoming smaller toward the apex. The flowers, borne in a kind of raceme at the upper part of the stem, are two to three inches broad, and, as in all the other species, yellow; the scales of the involucre are ovate, tapering into long and spreading rigid points; achenia broadly winged and deeply notched. There arise from the root numerous radical leaves, which are from ten to thirty inches in length, very rough with bristly hairs, in general outline ovate, but deeply pinnately cut and parted, the divisions themselves very often cut-lobed. The root is from one to three feet in length, and one-half to two inches in diameter, and has a very rough and irregular cortical layer. Its anatomical structure is as follows:

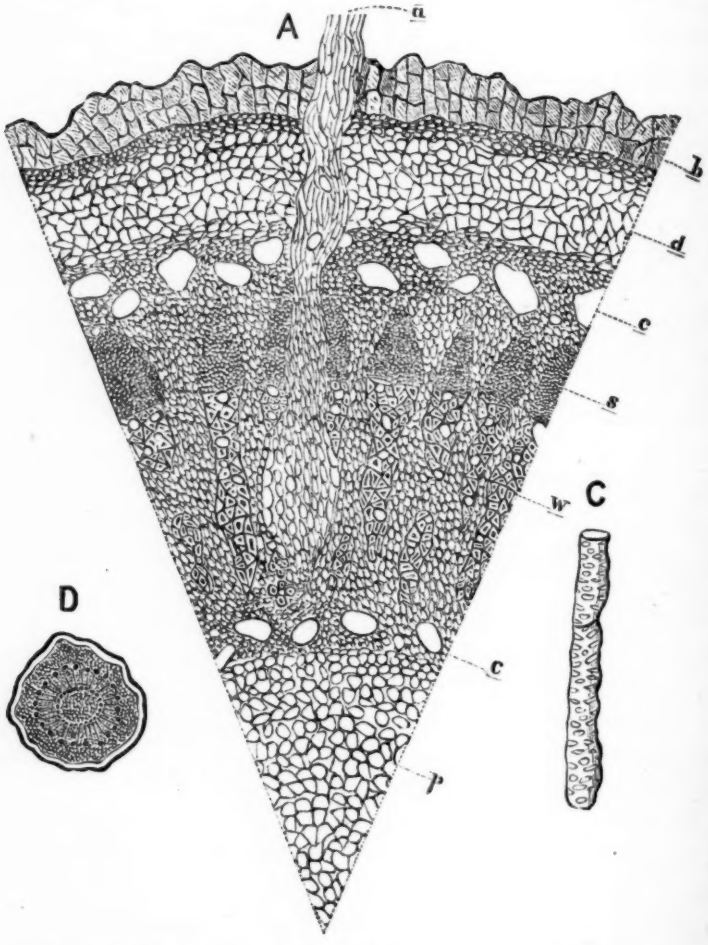
Fig. *A* shows a cross section of the root; the inner portion, comprising one-sixth of the radius of the root, is the pith (*p*), and is composed of loose parenchyma cells; we then find two circles of resin (*cc*) ducts, the inner circle near the dividing line of the woody tissue (*w*) and the pith, and the outer circle between the wood wedges (*w*) and the outer layer of parenchyma (*d*) tissue. These resin ducts are very irregular in shape.

The woody zone between the two rows of resin ducts is traversed by very wide medullary rays; the wood wedges are irregular in shape, and at the head of each is a wedge-shaped bundle of sieve (*s*) tubes, reaching to the outer row of resin ducts. Between the outer row of resin ducts and the cortical (*b*) layer is found a narrow layer of parenchyma cells, which are more compressed as they near the cortical layer, and this latter is composed of very irregular compressed tissue, resembling stone cells, and is af a yellowish-green color.

*a* shows the development of a rootlet; most of the rootlets originate from the inner row of resin ducts.

Fig. *B* is a longitudinal section of the root, and shows the very irregular course of the simple resin ducts.

Fig. *C* shows one of the pitted ducts, which were the only kind found, although some twenty specimens of the root were examined.

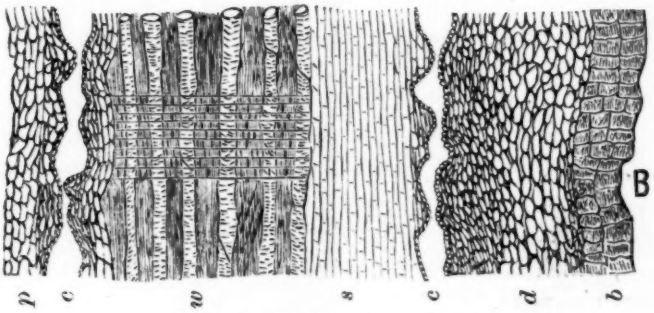



ROOT OF SILPHIUM LACINIATUM. — *A* Transverse section, magnified, with origin of a rootlet. *C* Pitted duct. *D* Transverse section, natural size.

Fig. *D* is a cross section of the root, natural size, from which the different magnified sections were cut.

Following is the result of an analysis made of the resinous juice

which exudes from the stem and foliage of the plant, either spontaneously or from the puncture of insects. It congeals in small translucent, and internally transparent, light yellow tears, of varied forms, breaks with a conchoidal fracture, has an agreeable terebinthinous odor and taste, softens quickly in the mouth, and is easily masticated and kneaded between the teeth; it has the specific gravity 1·039 at 20°C., and upon incineration one gram yielded 0·005 gram or 0·5 of ash.




Longitudinal section of root.

On treating an excess of the oleoresin with different liquids the following results were obtained, showing the relative solvent power of 100 parts of the liquids: chloroform 24·2, carbon disulphide 23·6; ether 19·3, benzin 18·0, benzol 17·0, alcohol of 90 per cent. 15·2, methyl alcohol 10·2 parts of the constituents of the exudation.

On the spontaneous evaporation of these solutions no crystalline residue was left. The residue left after the evaporation of the alcoholic solution was a yellowish-white waxy mass, with minute tranparent globules covering its surface, and which upon examination proved to be volatile oil. A small portion (0·62 per cent.) of the oleoresin is soluble in water. Chloroform dissolves nearly the whole of the oleoresin, which is insoluble in glycerin.

Subjected to distillation with water, a colorless volatile oil was obtained, having the specific gravity 0·868 at 18°C. It is neutral to test paper, soluble in equal parts of 90 per cent. and in fifteen parts of 80 per cent. alcohol, and boils at 158°C. It has a distinct terebinthinous odor, and with iodine gives quite a violent action, generating considerable heat. After carefully freeing a portion from water with chloride of calcium it gave a very slight action when brought in contact with metallic sodium, the oil doubtless consisting of a hydrocar-

bon probably identical in composition with oil of turpentine. The sodium was left in contact with the oil for several days without perceptibly changing its odor, but the oil assumed a light yellowish color.

The watery liquid left in the retort on the distillation of the volatile oil contained sugar, and yielded after some time a brownish precipitate with ferric chloride and white precipitates with caustic alkalies and with the lead acetates.

The residue left in the retort, after complete exhaustion with water, was a brownish-white mass, having an odor while warm very much like that of copaiba. It was completely soluble in chloroform, while carbon disulphide dissolved 97·1 per cent., ether 78·4 per cent., benzin 72·7 per cent. and alcohol (90 per cent.) 5·40 per cent. of it.

The portion soluble in alcohol, after spontaneous evaporation, was obtained in the form of a yellowish extract. It was wholly soluble in chloroform, almost entirely soluble in carbon disulphide, benzin and ether, which solutions by evaporation left residues of the same amorphous character.

The part insoluble in alcohol is whitish, tasteless, falls to powder when rubbed between the fingers, and is wholly soluble in chloroform and carbon disulphide, and only partly soluble in benzin and ether, and upon the evaporation of the liquids was again obtained as an amorphous powder.

A portion of the resinous residue from the retort was soluble in potassa and in ammonia, and reprecipitated by acids, and consists probably of a resinous acid.

Some of the residue was fused with caustic potash, the fused mass extracted with water, filtered, acidulated with sulphuric acid, the solution concentrated and the sulphate of potassium for the most part separated by crystallization; the filtrate was then well shaken with ether, the ether separated and allowed to evaporate spontaneously, when a whitish residue was left. This tested with ferric chloride did not change color, showing that there was no protocatechuic acid formed by this treatment.

The oleoresin which is gathered by children for chewing gum resembles mastich very much in appearance, but is much less soluble in alcohol, and its constituents seem to be more nearly allied to those of Chian turpentine.

The only part of the plant generally used is the leaves, and a fluid

extract prepared therefrom is found in the market. The powdered leaves have also been used in cattle powder as a diuretic.

The oleoresin yielded 19·66 per cent. of volatile oil and 37 per cent. of acid resin, the other constituents being wax, sugar, an undetermined white powder and a small amount of inorganic constituents.

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## THE EXAMINATION OF PERSIAN INSECT POWDER FOR ITS ACTIVE PRINCIPLE.

By Oscar Textor, Ph.C.

Persian insect powder consists of the pulverized flowers of Pyrethrum roseum, or Pyrethrum carneum, composites growing in the mountainous regions of Western Asia, from Persia to the Caucasus mountains.

The object of the work detailed below was to determine, if possible, the nature of the active principle of the drug. The reports, so far, have been contradictory as to the nature of the constituent to which the powder owes its insecticide effects. Rother (1876) ascribes its action to a glucoside, called by him persicin. Semenoff (1876) claimed to have obtained from the flowers a volatile substance, and a French observer regarded a crystalline alkaloid as the active principle (National Dispensatory, page 1192). The conclusions of the writer differ from these statements.

About one and one half ounce of the whole flowers were taken and pulverized, and passed through a sieve of eighty meshes to the inch. The powder, firmly packed in a percolator, was left to macerate an hour with benzol, and then percolated with six fluidounces of that solvent, the whole process requiring about six hours. The percolate turned blue litmus paper red. The benzol solution was now evaporated until all of the benzol was driven off, and in order to expel any volatile oil that might be present a little water was added, and again evaporated. The soft sticky residue became thinner when warmed, and flowed readily. This residue was treated with acidulated water and filtered, and the filtrate tested for alkaloids with phosphomolybdic acid, Mayer's reagent and a solution of iodine in potassium iodide, no precipitate being obtained with either of the reagents.

Upon the addition of alcohol the benzol extract dissolved almost wholly, and the solution, when poured into acidulated water, yielded

a precipitate having the properties of a soft resin. The alcoholic solution was found to turn blue litmus paper red. A portion of the benzol extract, treated with a few drops of potassium hydrate solution, lost its greenish hue, changed to a dark brown, and became readily soluble in water, the solution forming a lather when agitated. This solution yielded a precipitate upon the addition of a few drops of acidulated water. A fresh portion of the benzol extract was found to mix readily with strong sulphuric acid, but the addition of a little water immediately caused a precipitate. Nitric acid decomposed the extract, leaving a yellow resinous mass.

A portion of the benzol extract was now triturated with calcined magnesia to form a powder, of which a few grains were placed underneath a glass vessel containing a fly. The insect succumbed to the poison in about three minutes. The precipitate obtained by dissolving the benzol extract in alcohol and pouring into acidulated water, when reduced to a powder with the aid of magnesia, also had an immediate poisonous effect. The substance obtained by dissolving a portion of the benzol extract in potassium hydrate and precipitating with acidulated water, was pulverized with magnesia, and its effects upon a fly found to be identical with those of the two preceding substances. Now the original powder, as left after extraction with benzol, was introduced beneath a glass containing a fly, the result being no apparent effect upon the insect. The powder, as left after extraction with benzol, was then percolated with 95 per cent. alcohol, and the percolate evaporated to dryness. The residue, when triturated with magnesia to form a powder, failed to produce any poisonous action on a fly.

To determine the presence of a volatile oil, a fresh portion of the whole flowers, with enough water to cover, was introduced into a retort and a little common salt added to raise the boiling point. After standing twenty-four hours, heat was applied, and the mixture boiled until about four fluidounces had collected in the receiver. The distillate contained no trace of a volatile oil.

From what has been said it is evident that the poisonous principle resides in the benzol extract, as the powder after treatment with benzol no longer possesses any poisonous properties. The absence of alkaloids has been shown. Now what is the nature of this extract?

An answer to this question may be found by reconsidering the pro-

perties of the extract and its deportment with the various reagents with which it was treated.

In the first place, its soft consistence and sticky nature are qualities possessed by the whole class of soft resins. It is readily soluble in alcohol, the solution giving an acid reaction and precipitating upon the addition of water. These are properties possessed by resins in general. Many resins combine with alkalies and form compounds which may be called resin-soaps. The benzol extract became soluble upon treating with a few drops of potassium hydrate and formed a lather when agitated. Resins, with some exceptions, are precipitated unchanged from their combination with alkaline bases. The solution of the benzol extract in potassium hydrate yielded a precipitate with acidulated water; the poisonous properties of the extract were not impaired by the treatment, as was demonstrated by experiments made upon flies. The previously described action of the extract with sulphuric acid is also one of the characteristics of a resin.

With the support of the evidence given by these reactions, the writer ventures to answer the question previously put, by stating that the active principle of Persian insect powder is in nature a soft resin.

The poisonous action of the powder seems to be directed principally to the alimentary canal and the power of locomotion. The insect at first runs wildly about, evidently having an unpleasant sensation about the mouth, as is manifested by the ejection of a watery fluid and the strenuous endeavors of its fore legs to remove the cause of the irritation. The legs next begin to show signs of weakness and eventually become unable to support the body. The insect then resorts to its wings, and after a few short trips through the air the victim finds itself on its back. While in this position, it may easily be observed that the action on the alimentary canal is decided, as is evinced by the drops of liquid issuing from the mouth and from unmistakable signs of irritation in the lower part of the canal. The poisoned insect, though powerless to move, shows signs of life as long as ten hours after taking the poison.

*University of Michigan,*
*School of Pharmacy*, August, 1881.

## PARTHENIUM INTEGRIFOLIUM, Lin.

Natural order, *Compositæ;* Tribe, *Senecionideæ;* Sub-tribe, *Melampodineæ.*

By Frank B. Meyer, Ph. G.

*From an Inaugural Essay.*

This plant inhabits the central portion of the United States, growing in moist or dry soil in uncultivated fields. It is a perennial, having a large thick root, to which are attached numerous rootlets varying in size and length, some of them being four or five times as long as the main root. After drying, it is dark brown or blackish and internally, when moistened, shows a greenish color. The woody stem, with branches, attains a height of about three feet. The leaves are alternate, the upper ones sessile, serrate, ovate, acute, six to eight inches long below, an inch or less above. The stem terminates with numerous flowers disposed in a dense corymb. Involucre green, bell-shaped. Ray flowers five, white; heads small.

The tops of this plant having been used for several years, in some sections of Indiana, with good results in the cure of fever and ague, the writer was led to make an analysis, but unfortunately he was limited in his undertaking, only one pound of the tops being procurable in a proper condition.

The material was reduced to a coarse powder, since it was found impossible to powder it finely owing to its resinous qualities. Eight troyounces of the powder were exhausted by percolation with alcohol of sp. gr. ·835; from the tincture thus obtained the alcohol was recovered by distillation and the residue macerated for two days with water acidulated with acetic acid. The clear yellowish-red filtrate, tested with potassium iodohydrargyrate, gave indications of the probable presence of an alkaloid; on concentration, separated a minute amount of crystals, which were removed, and was then precipitated successively with acetate and sub-acetate of lead, the precipitate by the former being orange-colored and by the latter lemon-yellow. The filtrate, freed from lead by sulphuretted hydrogen, yielded on concentration a little resin-like substance, and afterwards reddish crystals, which could not be decolorized by recrystallization and yielded, with ferric chloride, a crimson-colored solution, and with Fehling's solution a precipitate of cuprous oxide.

The two lead precipitates were suspended in water, decomposed by sulphuretted hydrogen and the filtrate evaporated; the extract was partly soluble in chloroform, petroleum benzin and ether, and wholly soluble in potassa, the latter solution yielding, with hydrochloric acid, a yellow resinous precipitate.

The drug, exhausted with alcohol, was now percolated with water, the infusion boiled to coagulate the albumen and concentrated by evaporation, when it had a dark-brown color and a bitter taste. The residuary powder, boiled with water, yielded a very bitter liquid in which neither iodine water, ferric chloride or gelatin produced any change. The infusion and decoction were united and, on evaporation, yielded an extract which contained considerable gummy matter and yielded nothing to petroleum benzin, and to ether merely a small quantity of greenish substance.

A portion of the fresh powder, 810 grains, exhausted with petroleum benzin, yielded 17 grains of a dark-green, slightly bitter, waxy substance. The powder was subsequently exhausted with ether and the ether evaporated spontaneously. A crop of tolerably pure crystals was removed, the crystals subsequently forming being contaminated with resinous matter. Water, in which the ethereal extract was boiled, became extremely bitter and separated, on evaporation, clear, very bitter crystals which, in watery solution, acquired, with ferric chloride, a beautiful deep-red color and did not reduce Fehling's solution. Heated upon platinum foil, the crystals burned without leaving any residue.

On incineration, the powder left 10 per cent. of ash.

The parthenium tops are employed in the form of hot infusion, the strained liquid being preserved by the addition of a quantity of spirit. It should be mentioned yet that the liquid preparations of this drug possess an agreeable orange-like odor.

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**Anda-assu** is the fruit of Johannesia princeps, nat. ord. Euphorbiaceæ, indigenous to Brazil. The fruit weighs about 350 grams and contains 50 seeds, from which 48 grams of a clear, reddish, inodorous sweet oil may be obtained. Taken in the dose of 10 grams, four or five evacuations are produced without any nausea, vomiting or irritation of the intestines. Compared with castor oil, it is equally active in smaller doses, is more liquid and has not the disagreeable odor of the latter.—*Phar. Ztg.*

## USTILAGO MAYDIS, *Lév.*, CORNSMUT.

By John H. Hahn, Ph.G.

*Abstract of an Inaugural Essay.*

This drug is attracting considerable attention as a substitute for ergot of rye. It is claimed that it is equal, and in many cases superior, to ergot of rye, producing clonic instead of tonic contractions of the uterus, and thus more nearly simulates natural labor. Besides, its cost is about 50 per cent. less than that of ergot of rye. A dozen or more years ago it received a brief notice as an oxytocic by the German profession, but for some unaccountable reason it has since fallen into disuse by the regular profession. The homœopaths have dispensed the drug in their triturations and dilutions since the year 1866, when it was first noticed by Professor S. M. Hale of their school.

Microscopically it is quite a curiosity. The whole mass is found to be made up of spores, nodular when moist and of a very minute size, held together by a few threads of mycelium or binding fibres.

The following experiments were made with cornsmut:

The moisture present was determined to be 10 per cent. by gently heating 100 grams for several hours. Ether took up 2·5 per cent. of dark-brown fixed oil, having an acid reaction and an odor similar to that of the drug and being readily soluble in petroleum benzin, carbon bisulphide and chloroform, but insoluble in alcohol and pyroxylic spirit.

The powder, exhausted by ether, was percolated with carbon bisulphide, on the evaporation of which a few flat crystals were obtained. Water now yielded a liquid from which, by alcohol, 1·5 per cent. of dark-brown gummy matter was precipitated, the liquid having an acid reaction; on setting it aside for several weeks, 3 per cent. of yellowish crystals were separated which were soluble in nitric acid, but insoluble, or nearly so, in ether, chloroform, water and alcohol, either hot or cold, and which, on being heated upon platinum foil, left a white ash.

By boiling the drug with water, a small amount of waxy matter could be separated and the distillate had a very disagreeable odor.

On incinerating the drug, 4 per cent. of gray ash was obtained, which was not further examined.

# PHARMACOPŒIA REVISION.

By M. Carteighe.

*Read before the International Pharmaceutical Congress.*

Pharmacopœia revision is a subject of general interest to the members of the Congress, and of special interest to the pharmacists of Great Britain and Ireland. That pharmacists should be associated with the representatives of the medical profession in the compilation of a pharmacopœia is a proposition which will seem self-evidently reasonable to those members who have come to this meeting from abroad. It would seem a natural arrangement that while the representatives of medicine decide what drugs and remedies are to be inserted in such a volume, the formulæ of the preparation best adapted for their administration would be most conveniently determined by practical pharmacists. This view is accepted in the compilation of the various European pharmacopœias, the United States Pharmacopœia, and that of the Pharmacopœia of India.

If it be necessary to point out specially the practical advantages of the presence of the pharmacist on the executive body charged with the revision of a pharmacopœia, I would refer to the various processes and preparations of the United States Pharmacopœia. No other nation, so far as I know, possesses a pharmacopœia showing in each successive edition more marked improvement in the character, stability, and elegance of the various pharmaceutical preparations. The presence of the pharmacist on the Committee of Revision, and the representation of the leading colleges of pharmacy conjointly with those of medicine on the National Convention which appoints this committee, have stimulated the progress of pharmacy in the United States to a marvelous extent. Its pharmacy is more advanced, and it possesses more workers in the purely pharmaceutical line of research than most other countries. This result is mainly due to the cordial recognition by the colleges of medicine of the value of public pharmaceutical institutions, and the services of their individual members in framing their national pharmacopœia.

The conditions under which pharmacy was conducted in Great Britain, before the foundation of Pharmaceutical Society in 1842, were not such as to inspire the medical profession or the public with much confidence in the ability or intelligence of those who practiced it. The apothecary of those days had given up what little pharmacy he practiced, and his successor had not acquired either by education or expe-

rience the necessary skill for advancing his art. The Pharmaceutical Society immediately after its incorporation set to work to educate and promote education in the general body. After nearly forty years of active exertion, it has succeeded in rearing a class of men who compare favorably with their Continental and American brethren in their knowledge of the science and art of pharmacy. The more active and experienced of the founders, not content with fostering education alone, occupied themselves in improving the existing processes, and devising new and improved formulæ for pharmaceutical preparations. One of the most active in this respect was Mr. Peter Squire, who, by the publication of his comparison of the three Pharmacopœias of London, Edinburgh and Dublin, and his practical work in pharmaceutical research, contributed more than any other man to pave the way for the fusion of those pharmacopœias into one national volume. Other pharmacists also assisted, but it should not be forgotten that Mr. Squire and his fellow workers in pharmacy prepared the materials for the first British Pharmacopœia.

The first British Pharmacopœia appeared in 1864, and was issued under the authority of the Medical Council, a body created by the Medical Act of 1858. Owing to the difficulties of reducing to one standard the processes and descriptions of three different pharmacopœias, and of recognizing the varying usages in pharmacy, and prescriptions of the people of three countries hitherto in these respects separate and independent, it was not a satisfactory work. In 1867 appeared a new edition, which, with the "Additions," published in 1874, forms the existing British Pharmacopœia. Modeled on the United States Pharmacopœia, this is a decided advance on all previous works of the kind published in this country, and the improvement is to be attributed to the large pharmaceutical experience and knowledge of the editor.

The question as to how often a new edition is called for must necessarily be viewed differently by the medical man and pharmacist. The public officials connected with the administration of the "*Sale of Food and Drugs Act*" in this country regard the pharmacopœia as the standard, in respect of purity and strength, for many preparations used in medicine. It is, therefore, very important to the pharmacist that the information contained in each edition should be of comparatively recent date. Ten years is a sufficiently long interval, and if the chemical nomenclature is not altered each time (and it need not be), I do not see that decennial issues would entail any inconvenience on the medical profession.

In conclusion, I hope the time is not far distant when the usefulness of pharmacists, in the construction of a British Pharmacopœia, will be recognized and appreciated to the same extent as in other countries. The medical profession and the public will both gain by the result.—*Pharm. Jour. and Trans.*, August 6, 1881.

# THE EQUALIZATION OF THE STRENGTH OF OFFICIAL PHARMACEUTICAL PREPARATIONS CONTAINING POTENT DRUGS.

By Peter Squire.

*Read before the Fifth International Pharmaceutical Congress.*

The dangerous differences which existed between the three Pharmacopœias of London, Edinburgh and Dublin paved the way for the British Pharmacopœia, and the advantages which have resulted from the change have fully justified the idea of superseding the former conditions of local self-government in medicine by one uniform guide and standard applicable to the whole British Empire. A similar experience has been gained by the substitution of the "Pharmacopœa Germanica" in place of the Pharmacopœias previously used for several States of the German Confederation. So, likewise, in Switzerland and the United States, respectively, there is but one national Pharmacopœia. And for some years past the idea has been gaining strength that it is becoming desirable to extend this principle to the Pharmacopœias of various countries, at least so far as to attain international uniformity in the strength and composition of certain medicines.

Among the reasons that may be adduced in favor of such a proceeding, it may be mentioned that many persons now travel, not only for business or pleasure, but also for health. Now, from a glance at the accompanying tables (see pp. 503 to 505), furnishing a comparison of the strength, etc., of certain preparations universally used, and common to most, if not all Pharmacopœias, it will be evident that medicine dispensed according to a prescription ordering any one of those preparations would possibly vary very much in character according to the country in which it was obtained by the patient. The present may be regarded as a favorable time for the consideration of this subject, since new editions of some of the Pharmacopœias are being prepared. For some years past, moreover, there has been a strong desire for uniformity. In addition to differences in strength, which are greatest of all in tincture of cantharides, the formulæ often vary by ordering different materials to be used, as in the case of tincture of aconite, for which either the root, the dried herb or leaves, and in some instances the fresh herb are ordered. The same remark applies to tincture of belladonna. It is to be noticed that in the preparations of opium the Pharmacopœias of France and of Belgium have in several editions ordered the extract of opium to be used in making the tincture. They have also substituted extract of opium for powdered opium in the very old formula for Dover's powder, thus making it of double strength, as in the present "Pharmacopée Française." A comparison of the formula in the Pharmacopœia Gallica of 1818 with that in the Universal Pharmacopœia, published by Swediaur in 1803, will show how this has occurred. The last-named work was the source from which the formula was stated to have been taken for the Pharmacopœia Gallica, although extract of opium is ordered in place of the opium powder of the original.

SWEDIAUR, 1803.

PULV. SUDORIFICUS (DOVERI).

℞ Nitratis potassæ,
Sulfatis potassæ, ana uncias quatuor.

Simul in pulverem tenuem trita immittantur in crucibulum, ut igne liquescant; massæ dein in mortarium ferreum effusæ et pene refrigeratæ adjice primo

*Opii siccati pulv. unciam unam.*

Dein post triturationem adde

Radicis Psycothriæ emeticæ pulv. unciam unam.

Tere in pulverem tenuissimum.

PHARM. GALLICA, 1818.

PULVIS EX IPECACUANHA ET OPIO COMPOSITUS, DICTUS DOVERI.

℞ Sulfatis potassæ, . . 4
Nitratis potassæ, . . 4

Simul trita conjiciantur in crucibulum ut igne liquentur. Massæ dein in mortarium ferreum effusæ et pene refrigeratæ adjice

*Extracti opii siccissimi in pulverem redacti* 1.

Hisque simul tritis adde demum

Radicis ipecacuanhæ (Cephælis emetica) 1.

Glycyrrhizæ (Glycyrrhiza glabra) 1.

Terantur omnia in pulverem tenuissimum.

The formula having been copied and the reference given, it is difficult to account for this alteration of one of the most important ingredients, except as having been an oversight. Still, it may be asked whether the French and Belgians, after being familiar with this strength, would be content to alter it to one-half; or whether in other countries the Pharmacopœia authorities would of their own accord double the strength of this preparation. In similar cases of large differences in the strength of certain preparations the same difficulty would present itself, more especially if the Pharmacopœia authorities of individual countries should take the same view as those of the United States that it is unwise to alter the strength of their highly active medicines. It is to be noticed that very many of the tinctures of various pharmacopœias are made of the strength one in five, and, therefore, it is not surprising to find that in the majority of the Pharmacopœias some of the tinctures in common use contain the same proportion of active ingredient. But it also happens that some tinctures which are one in five according to some Pharmacopœias, are one in ten according to others, and the reverse.

Strictly speaking, to have uniformity, not only should the proportions be identical, but the process as well as the strength of the spirit used ought to be the same. At present some Pharmacopœias direct maceration, pressing and filtering; others direct percolation, and making up the product with spirit to the original volume; others direct percolation till the full quantity has passed through; others again direct making up the ascertained loss during maceration, and then pressing and filtering.

As regards solutions of arsenic and the alkaloids, a strength of 1 per cent. would closely accord with the solutions of arsenic now in use in all countries, and that would be a good strength for solutions of the salts of atropia, morphia and other alkaloids, if it should be deemed advisable to include solutions like these in a Pharmacopœia. Such solutions are constantly prescribed in Great Britain, but they have not found much favor in other Pharmacopœias.

At first sight it would seem far easier to assimilate Pharmacopœias of continental Europe than those of Great Britain and of the United States, because of the difference in the usage of the two countries in regard to weighing and measuring, and also because of the difference between the weights and measures of those countries. In the United States liquid acids and oils are weighed, but all other liquids are measured as in England. When the British Pharmacopœia was introduced, the troy weight that had hitherto been used in England and Scotland had to give way to the avoirdupois weight then used in Ireland. The imperial measure was already being used in England, Scotland and Ireland for liquids. Thus the avoirdupois ounce, weighing 437½ grains, and the fluidounce—or the volume of distilled water weighing at a temperature of 60°F. 437½ grains—became the standards of weight and measure in the British Pharmacopœia.

The fluidounce is divided into 480 minims, and so far as regards subdivisions corresponds to the ounce troy of 480 grains formerly in use, but as the minim does not weigh a grain, the fluidrachm of 60 minims is only equal to $54\frac{7}{10}$ grains. However, all liquids except mercury are ordered by the British Pharmacopœia to be measured, and in all prescriptions they are dispensed by measure. All liquid medicines are ordered to be taken by measure, so that a consistency runs through the whole arrangement.

The United States Pharmacopœia retains the use of the troy weight, the wine pint of 16 ounces weighing $7291\frac{2}{10}$ grains and the fluidounce weighing $455\frac{7}{10}$ grains in the case of water at a temperature of 60°F. Therefore the United States liquid measure differs from the British liquid measure in each of its divisions.

On the continent of Europe all liquids, as well as solids, are weighed in dispensing, and in the formulæ of the Pharmacopœias the same system is followed. Sometimes the proportions are expressed in grams, and sometimes in parts, but always by weight, so that in the case of a tincture ordered to be made with 1 part of the drug to 5 parts of spirit the same proportions will be maintained in all countries where it is the practice to weigh everything. But 1 part of drug to 5 parts of spirit would have a different meaning in Great Britain and in the United States where the spirit would be measured, and there would even be a further difference, since the measures used are not the same in the two countries.

It follows, therefore, that one of the first steps towards uniformity of pharmaceutical preparations is to obtain a standard in parts by weight, say, for example, 1 part of a drug to 5 parts of spirit. It would not be necessary to alter the method of British dispensing, or the directions of the Pharmacopœia, by the substitution of weighing for measuring, since it is easy to determine the volume equivalent of a given weight of spirit, and to regulate the strength of the preparation accordingly.

The United States National Convention of 1870 directed the committee entrusted with the revision of the Pharmacopœia that measures of capacity should be abandoned in the Pharmacopœia, and that in all formulæ quantities should be expressed both in weights and parts by weight. But the committee was unanimous in the opinion that the execution of those directions would entail the use of a metrical system not employed in the United States or in Great Britain, and that while such a system would have to be constructed for the purpose, the change would involve alteration in the proportions of almost every formula, and would produce a corresponding disturbance in many of the doses. The Revision Committee, appointed in 1879 by the American Pharmaceutical Association, took the same view as the National Convention did in 1870, and recommended that all measures of capacity should be abandoned, and that quantities should be expressed only in parts by weight; also that in reconstructing the formulæ of officinal preparations the following points were to be kept in view:

(*a*). All tinctures, wines, etc., of which a slight variation of dose would be of no importance, were to be made as nearly as possible of uniform percentage strength—1 part of the drug to 5 or 10 parts of the tincture.

(*b*). In the case of highly active preparations, such as tinct. aconiti radicis, tinct. nucis vomicæ, tinct. opii and tinct. veratri viridis, the strength then in use was to be maintained as nearly as possible.

But supposing the Pharmacopœia authorities of the United States decided to weigh all liquids, we should not have advanced much nearer toward international uniformity if they resolved not to alter their strong tinctures, and, as shown in the tables, those are precisely the preparations which present so much variation in the different Pharmacopœias. However, in regard to such preparations the advantages of international uniformity are obvious, and it is the business of pharmacists to consider what is the best method of securing the equalization of the strength of official preparations containing potent drugs and common to the Pharmacopœias of all nations. Free discussion of the subject at intervals, and especially at meetings such as the present, must have an effect in promoting the attainment of the object. But unless some standard for each preparation can be agreed upon, the Pharmacopœia committees of different countries, when considering the issue of new editions, will be quite as likely to divide into two great classes as to coalesce into one. Thus, for example, the Pharmacopœia formulæ for tincture of nux vomica practically order either 1 part in 10 or 1 part in 5.

Is it not advisable that in each country, when altering the strength of a preparation which is not altogether referable to one of two great classes, one strength, agreed upon internationally, should be adopted, so that eventually we might have that preparation of one uniform strength? Is it too much to hope that the committees having the

power to make such alterations should at least confer together? But the most perfect committee for obtaining an international Pharmacopœia would doubtless be one constituted of delegates from each country with full powers to act, and then each disputed point could be decided by a majority of votes.

In the meantime I would suggest that the Pharmacopœia committees of each country should have a permanent existence, instead of being specially appointed when a revision of the Pharmacopœia of any particular country is contemplated. They could under these circumstances at all times confer with one another, with a view to future changes in the direction of uniformity.

In the following tables the quantities in the British and in the United States Pharmacopœias have been converted into parts by weight for the purpose of comparison.

*Tinct. Aconiti.*

| | | | |
|---|---|---|---|
| U. S. | 1 | Root | 2·1 Spirit. |
| Austrian | 1 | | 5 |
| Hungarian | 1 | | 5 |
| Portuguese | 1 | | 5 |
| British | 1 | | 6·4 |
| German | 1 | | 10 |
| Russian | 1 | | 10 |
| Swiss | 1 | D'd lvs. | 5 |
| Portuguese | 1 | | 5 |
| Belgian | 1 | D'd hb. | 5 |
| Greek | 1 | | 6 Spt. Æther. |
| Danish | 1 | | 10 Spirit. |
| Norwegian | 1 | | 10 |
| Russian | 1 | | 10 |
| French | 1 | F'sh lvs. | 1 |
| Belgian | 1 | F'sh hb. | 1 |
| Spanish | 1 | | 1 |
| Portuguese | 1 | | 1 |

*Tinct. Arnicæ.*

| | | | |
|---|---|---|---|
| U. S. | 1 | Flowers | 4·4 Spirit. |
| French | 1 | | 5 |
| Belgian | 1 | | 5 |
| Spanish | 1 | | 5 |
| Dutch | 1 | | 8 |
| Greek | 1 | | 8 |
| German | 1 | | 10 |
| Danish | 1 | | 10 |
| Russian | 1 | | 10 |
| Portuguese | 1 | | 10 |
| Swiss | 1 | | 10 |
| Norwegian | 1 | | 10 |
| Swedish | 1 | | 10 |
| Russian | 1 | Root | 5 |
| Portuguese | 1 | | 5 |
| Austrian, Hungar'n | 1 | R't, l'f & flw's | 5·5 |
| British | 1 | Root | 16 |
| French | 1 | F'sh fl's | 1 |

*Tinct. Belladonnæ.*

| | | | |
|---|---|---|---|
| French | 1 | D'd lvs. | 5 Spirit. |
| Belgian | 1 | D'd hb. | 5 |
| Spanish | 1 | D'd lvs. | 5 |
| Portuguese | 1 | | 5 |
| Swiss | 1 | | 5 |
| U. S. | 1 | | 7 |
| Russian | 1 | | 10 |
| British | 1 | | 18 |
| French | 1 | F'sh lvs. | 1 |
| Belgian | 1 | | 1 |
| Portuguese | 1 | | 1 |
| German | 1 | | 1·2 |
| Hungarian | 1 | Root | 5 |
| Austrian | 1 | | 5 |

*Tinct. Cantharidis.*

| | | | |
|---|---|---|---|
| Austrian | 1 | Powder | 5 Spirit. |
| Belgian | 1 | | 5 |
| Hungarian | 1 | | 5 |
| Danish | 1 | | 5 |
| Greek | 1 | | 6 |
| Dutch | 1 | | 8 |
| Russian | 1 | | 10 |
| German | 1 | | 10 |
| French | 1 | | 10 |
| Swiss | 1 | | 10 |
| Portuguese | 1 | | 10 |
| Spanish | 1 | | 13 |
| U. S. | 1 | | 28 |
| Norwegian | 1 | | 30 |
| Danish | 1 | | 30 |
| Swedish | 1 | | 30 |
| British | 1 | | 72 |

*Tinct. Colchici.*

| | | | |
|---|---|---|---|
| Austrian | 1 | Seeds | 5 Spirit. |
| Belgian | 1 | | 5 |
| Portuguese | 1 | | 5 |
| Swiss | 1 | | 5 |
| Dutch | 1 | | 5 |
| Greek | 1 | | 6 |
| British | 1 | | 7·2 |

*Tinct. Colchici*—(continued).

| | | | |
|---|---|---|---|
| U. S. | 1 | Seeds | 7 Spirit |
| Russian | 1 | | 10 |
| French | 1 | | 10 |
| Danish | 1 | | 10 |
| German | 1 | | 10 |
| Swedish | 1 | | 10 |
| Spanish | 1 | Corm | 5 |
| Belgian | 1 | | 5 |
| Portuguese | 1 | | 5 |
| French | 1 | | 5 |

*Tinct. Digitalis.*

| | | | |
|---|---|---|---|
| Dutch | 1 | D'd lvs. | 4 Spirit. |
| French | 1 | | 5 |
| Belgian | 1 | | 5 |
| Austrian | 1 | | 5 |
| Spanish | 1 | | 5 |
| Portuguese | 1 | | 5 |
| Hungarian | 1 | | 5 |
| Swiss | 1 | | 5 |
| Greek | 1 | | 6 |
| British | 1 | | 7·2 |
| U. S. | 1 | | 7 |
| Danish | 1 | | 10 |
| Russian | 1 | | 10 |
| Norwegian | 1 | | 10 |
| Swedish | 1 | | 10 |
| French | 1 | F'sh lvs. | 1 |
| Belgian | 1 | F'sh hb. | 1 |
| Spanish | 1 | | 1 |
| Portuguese | 1 | | 1 |
| German | 1 | | 1·2 |

*Tinct. Iodi.*
*Syn. Solutio Iodi Spirituosa.*

| | | | | |
|---|---|---|---|---|
| Portuguese | 1 | Iodine | 9 | Spirit. |
| Swiss | 1 | | 9 | |
| German | 1 | | 10 | |
| Russian | 1 | | 10 | |
| Belgian | 1 | | 11·5 | |
| French | 1 | | 12 | |
| Dutch | 1 | | 12 | |
| U. S. | 1 | | 12·5 | |
| Spanish | 1 | | 12 | |
| Austrian | 1 | | 16 | |
| Hungarian | 1 | | 16 | |
| Danish | 1 | | 19 | |
| Norwegian | 1 | | 19 | |
| Swedish | 1 | | 19 | |
| Greek | 1 | | 19 | |
| British | 1 | Iodine | 32 | |
| | ·5 | Pot. Iod. | | |
| U. S. (comp.) | 1 | Iodine | 25 | |
| | 2 | Pot. Iod. | | |

*Tinct. Nucis Vomicæ.*

| | | | |
|---|---|---|---|
| U. S. | 1 | Seeds | 3·1 Spirit. |
| Austrian | 1 | | 5 |
| Hungarian | 1 | | 5 |
| Spanish | 1 | | 5 |

*Tinc. Nucis Vomicæ*—(continued).

| | | | |
|---|---|---|---|
| Portuguese | 1 | Seeds | 5 Spirit |
| Belgian | 1 | | 5 |
| French | 1 | | 5 |
| Dutch | 1 | | 6 |
| British | 1 | | 8 |
| Russian | 1 | | 10 |
| German | 1 | | 10 |
| Danish | 1 | | 10 |
| Swiss | 1 | | 10 |
| Swedish | 1 | | 10 |
| Norwegian | 1 | | 10 |

*Tinct. Opii.*
*Syn. Tinct. Thebaica.*

| | | | |
|---|---|---|---|
| Greek | 1 | Powder | 6 Spirit. |
| Russian | 1 | | 9·5 |
| Swiss | 1 | | 9·5 |
| German | 1 | | 10 |
| Danish | 1 | | 10 |
| Austrian | 1 | | 10 |
| Hungarian | 1 | | 10 |
| Norwegian | 1 | | 10 |
| Swedish | 1 | | 10 Spirit, etc. |
| U. S. | 1 | | 11 Spirit. |
| British | 1 | | 12 |
| Spanish | 1 | | 12 |
| French | 1 | Extract | 12 |
| Belgian | 1 | | 12 |
| Portuguese | 1 | | 20 |

*Vinum Antim. Tart.*
*Syn. Vinum Stibiatum. Vin. Emétique.*

| | | | | |
|---|---|---|---|---|
| Belgian | 1 | Ant.Tart. | 200 | Malaga. |
| Port'g'se | 1 | | 200 | Port Wine |
| British | 1 | | 219 | Sherry. |
| U. S. | 1 | | 228 | |
| Hungrn. | 1 | | 240 | Malaga. |
| Russian | 1 | | 240 | |
| Dutch | 1 | | 240 | Sherry. |
| Greek | 1 | | 240 | Alc. Wine. |
| German | 1 | | 250 | Sherry. |
| Austrian | 1 | | 250 | Malaga. |
| Danish | 1 | | 250 | Sherry. |
| Norweg. | 1 | | 250 | |
| Swedish | 1 | | 250 | Malaga. |
| Swiss | 1 | | 250 | |
| Spanish | 1 | | 288 | Sherry. |
| French | 1 | | 300 | Malaga. |

*Liquor Plumbi Subacetatis.*

| | Lead Acetate. | Lead Oxide. | Water. | Sp. Gr. |
|---|---|---|---|---|
| Danish | 3·3 | 1 | 15·3 | 1170 to 1175 |
| Swedish | 3·3 | 1 | 15·3 | 1770 to 1175 |
| Norwegian | 3·3 | 1 | 15·3 | not gvn. |

*Liq. Plumbi Acet.*—(continued.

| | | | | |
|---|---|---|---|---|
| Austrian | 3 | 1 | 10 | 1230 to 1240 |
| German | 3 | 1 | 10 | 1235 to 1240 |
| Russian | 3 | 1 | 10 | 1236 to 1240 |
| Swiss | 3 | 1 | 10 | 1236 to 1240 |
| Portuguese | 3 | 1 | 10 | 1260 |
| British | 2·5 | 1·75 | 10 | 1260 |
| U. S. | 2·5 | 1·5 | 10 | 1267 |
| Dutch | 2·6 | 1·5 | 10·3 | 1252 to 1256 |
| Belgian | 2 | 1 | 7 | 1240 |
| Hungarian | 2 | 1 | 8 | not given |
| Spanish | 3 | 1 | 7·3 | " |
| French | 3 | 1 | 8 | 1320 |
| Greek | 3 | 1 | 9 | 1360 to 1365 |

*Pulvis Doveri.*

| | | | |
|---|---|---|---|
| British | 1 Ipecac | 1 | Opium in 10 |
| Austrian | 1 | 1 | |
| Danish | 1 | 1 | |
| German | 1 | 1 | |
| Greek | 1 | 1 | |
| Hungarian | 1 | 1 | |
| Norwegian | 1 | 1 | |
| Portuguese | 1 | 1 | |
| Russian | 1 | 1 | |
| Swedish | 1 | 1 | |
| Swiss | 1 | 1 | |
| Dutch | 1 | 1 | |
| U. S. | 1 | 1 | |
| Spanish | 1 | 1 | Opium in 12 |
| French | 1 | 1 | Ex.Op.in 11 |
| Belgian | 1 | 1 | |

*Vinum Colchici.*

| | | | |
|---|---|---|---|
| U. S. | 1 Root | 2·5 | Sherry. |
| British | 1 | 5 | " (about) |
| Portuguese | 1 | 10 | Madeira. |
| Spanish | 1 | 16 | Malaga. |
| French | 1 | 16·6 | |
| Austrian | 1 Seeds | 5 | |
| Hungarian | 1 | 5 | |
| Swiss | 1 | 5 | |
| Greek | 1 | 6 | Alc. Wine. |
| Belgian | 1 | 6·6 | Spirit & Malaga. |
| U. S. | 1 | 7·5 | Sherry. |
| Dutch | 1 | 9 | Spirit & Sherry. |
| German | 1 | 10 | Sherry. |
| Russian | 1 | 10 | |
| Danish | 1 | 10 | |
| Norwegian | 1 | 10 | |
| Portuguese | 1 | 10 | Madeira. |
| Spanish | 1 | 16 | Malaga. |
| French | 1 | 16·6 | |

*Unguentum Cantharidis.*
*Pommade Epispastique Verte.*

| | | | |
|---|---|---|---|
| Spanish | 1 Canthar. | 2·3 | Ung. & Wax. |
| U. S. | 1 | 3 | Resin Cerate. |
| Russian | 1 | 4 | Oil and Wax. |
| Norwegian | 1 | 4 | Ung. Basil. |
| Swedish | 1 | 4 | Ung. Ter. Resin. |
| Danish | 1 | 5 | Oil and Wax (about). |
| Greek | 1 | 5 | Oil and Wax. |
| (treated with Spirit.) | | | |
| Belgian | 1 Canthar. | 5·6 | Lard & Wax. |
| German | 1 | 6 | Oil and Wax. |
| Swiss | 1 | 6 | |
| Dutch | 1 | 6 | |
| (treated with Spirit.) | | | |
| British | 1 Canthar. | 6·4 | Oil and Wax. |
| Belgian | 1 | 10 | Lard & Wax. |
| Portuguese | 1 | 16·6 | Oil, Wax, etc. |
| French | 1 | 32 | Ung. & Wax. |
| Belgian | 1 | 32 | Ung. & Wax (about). |

*Unguentum Hydrargyri.*
*Pommade Mercurielle à parties égales.*

| | | | | | |
|---|---|---|---|---|---|
| U. S. | 5 Merc. | 2·5 | Lard | 2·5 | Suet |
| Port'g'se | 5 | 4 | | 1 | |
| Spanish | 5 | 5 | | | — |
| French | 5 | 4·6 | Benz Lard | 0·4 | Wax |
| Belgian | 5 | 4 | Lard | 0·5 | Suet |
| | | | | 0·5 | Oil. |
| British | 16 | 16 | | 1 | Suet. |
| German | 6 | 8 | | 4 | |
| Russian | 6 | 8 | | 4 | |
| Greek | 6 | 8 | | 4 | |
| Austrian | 6 | 9 | | 3 | |
| Hungrn. | 6 | 9 | | 3 | |
| Swiss | 6 | 10 | | 4 | |
| Dutch | 6 | 21 | | | — |
| Danish | 9 | 22 | | 14 | Suet. |
| Swedish | 9 | 27 | | 9 | |
| Norweg. | 10 | 30 | | 10 | |

# THE TWENTY-NINTH ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

*First Session—Tuesday, August 23.*

The Association met at Masonic Hall, in Kansas City, Mo., and in the absence of President Shinn, who had been detained at home in consequence of a fire rendering the rebuilding and arranging of his store necessary, Vice President Schafer called the meeting to order. Mr. D. S. Twitchell, on behalf of the city and of the local pharmaceutical association, welcomed the members to the hospitalities of Kansas City. Words of welcome were also spoken by the President of the Kansas State Pharmaceutical Association, Mr. Robert J. Brown, and briefly responded to by the chair.

Messrs. J. F. Judge, of Cincinnati; H. E. Griffith, of Niagara Falls, and J. Ingalls, of Macon, Ga., were appointed a committee on credentials, after which the presiding officer delivered his annual address, which was referred to a committee, consisting of Messrs. Markoe, Remington and Crawford, for consideration of the suggestions and report thereon. On motion of Mr. Markoe, a vote of thanks was tendered to Vice President Schafer for his address.

A telegram from the Board of Managers of the Western National Fair Association was read, inviting the members to visit the exhibition at Bismarck; also a telegram from the President of the California College of Pharmacy, sending fraternal greetings and a cordial invitation to hold the next annual meeting in San Francisco.

The report of the Committee on Credentials was then read, amended and approved. Delegates from 34 societies had been accredited, namely: from the State Pharmaceutical Associations of Alabama, Connecticut, Georgia, Illinois, Iowa, Kentucky, Kansas, Missouri, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, West Virginia and Wisconsrn; from the local associations of Kings county, New York (German Apothecaries), Richmond and Toledo; from the following Colleges of Pharmacy: Chicago, Cincinnati, Louisville, Maryland, Massachusetts, National (Washington), New York, Ontario, Philadelphia and St. Louis; and from the Alumni Associations of the Cincinnati, Massachusetts, New York, Philadelphia and St. Louis Colleges. On roll-call, 88 members were found to be present.

The Council reported the names of 62 candidates for membership, whose election by the Council was pending. The reports of committes were handed in and a committee on nomination was appointed, consisting of one delegate from each society represented and of the following five members: G. W. Sloan, of Indianapolis; A. E. Ebert, of Peoria; C. F. Goodman, of Omaha; Thomas B. Nichols, of Salem, Mass., and William H. Rogers, of Middletown, N. Y.

The minutes of the Council meetings held since last year were read, giving information of the organization of the Council and the transaction of routine business, and proposing an amendment to Chapter VIII, Art. 3 of the By-Laws, requiring applications for membership to be accompanied by the admission fee and one year's dues. The minutes were approved and at the fifth session the amendment was adopted.

An amendment to the By-Laws, offered by Prof. Markoe, requiring the officers elect to take their places at the opening of the final session of the annual meeting, was laid over and at the fifth session indefinitely postponed.

After the appointment of a Committee on Exhibition, consisting of Messrs. A. G. Vogeler, of Chicago; T. R. Baker, of Richmond, Va.; J. D. Wells, of Cincinnati; J. L. Lemberger, of Lebanon, Pa., and C. A. Weaver, of Des Moines, the Association adjourned until Wednesday morning at 10 o'clock.

*Second Session— Wednesday Morning, August 24.*

After the reading and approval of the minutes of the first session and of the Council, the Nominating Committee made their report and the following officers were duly elected:

President, P. W. Bedford, of New York. Vice Presidents—Emlen Painter, of California; George Leis, of Kansas; John F. Judge, of Ohio. Treasurer, Charles A. Tufts, of New Hampshire. Permanent Secretary, John M. Maisch, of Pennsylvania. Reporter on the Progress of Pharmacy, C. Lewis Diehl, of Kentucky. Also the following Standing Committees: On Drug Market—Louis Lehn, chairman, of New York; James G. Steele, of California; P. C. Candidus, of Alabama; Thomas Whitfield, of Illinois; John P. Smith, of Maryland. On Papers and Queries—J. U. Lloyd, chairman, of Ohio; Starr H. Ambler, of New York; William W. Bartlett, of Massachusetts. On Prize Essays—C. Lewis Diehl, chairman, of Kentucky; John F. Judge, of Ohio; Emil Scheffer, of Kentucky. On Legislation—John M. Maisch, chairman, of Pennsylvania; Samuel A. D. Sheppard, of Massachusetts; Charles Mohr, of Alabama.

Messrs. Bullock, of Philadelphia, and Diehl, of Louisville, were appointed a committee to conduct the President elect, and Messrs. Thompson, of Washington and Saunders, of London, Ont., a committee to conduct the Second and Third Vice Presidents elect to their places. All made brief addresses. The First Vice President was not present at the meeting.

The Council reported the names of 58 candidates for membership. An invitation from Toledo, O., to hold the next annual meeting in that city, was received and referred.

The reports of committees being in order, that of the Committee on the Drug Market was read, the chairman, Mr. L. Lehn, giving a brief account of the changes in the supply and price of the more important drugs and chemicals and the novelties which have been brought to the notice of the medical and pharmaceutical profession.

The report on Legislation gave a brief review of the various bills relating to pharmacy which had been under consideration during the past year in several States and of those which were passed, namely: a poison law in Arkansas, pharmacy laws in Connecticut, Illinois, Missouri, North Carolina and West Virginia, and food and drug adulteration laws in Michigan, New Jersey and New York.

The Committee on Membership reported on their efforts made during the past year. In a report made by the Secretary, attention was directed to unimportant clerical alterations of Chapter IX, Article III, section 5 of the By-Laws, to avoid misconstruction; also to a misprint in the Proceedings for 1879, when the financial year was ordered to commence January 1st, instead of June 1st as there printed. The Secretary also read the tele-

grams sent to the officers of the California College of Pharmacy and of the Western Fair Association.

The Association, in a body, proceeded to the exhibition room, and afterwards adjourned until afternoon.

*Third Session— Wednesday Afternoon, August 24.*

After the reading of the minutes and the announcement of various entertainments the minutes of the Council were read and approved; the election of 61 candidates announced at the first session was reported, one having been withdrawn.

An invitation from the Wisconsin delegation to hold the next meeting at Milwaukee was received, and, on motion, a committee, consisting of Messrs. W. Saunders, of London, Ont.; C. Huston, of Columbus, O., and W. H. Rogers, of Middletown, N. Y., was appointed, to whom all the invitations were referred.

A paper on the *Presence of Tannin in Gentian*, by Mr. Edgar L. Patch, was read. It detailed a large number of experiments performed by various processes, with the view of isolating a body which gives precipitates with gelatin, cinchonidia sulphate, tartar emetic and ferric chloride, with the latter dirty green. These reactions are not due to gentisic acid, which was found to be nearly insoluble in water and to give a deep brown color with ferric salts. This tannin-like compound seems to be so combined that it precipitates with the resinous matter. The author also compared the yellow crystalline body obtained by Kennedy from *American Colombo*, with pure gentisic acid, and found it to be of a darker yellow, more soluble in water and ether, less soluble in cold alcohol, fusible at a lower temperature and congealing amorphous; though colored brown by ferric chloride, it gives a blood-red color with nitric acid and a carmine-red color with sulphuric acid, while gentisic acid is colored dark green by the former, and dissolved unchanged by the latter.

A paper by Dr. C. Rice on *the Most Desirable Melting Point of Petroleum Ointment* was read. Practitioners of medicine usually find two such preparations necessary, one of a melting point of about 40°C. or 104°F., the other having more the character of a cerate with a melting point of 46°C. or 115°F. But for various reasons it seems advisable that only one be officially recognized by the Pharmacopœia, having the lower melting point mentioned; by melting this together with more or less yellow wax preparations of any desirable consistence and melting point as well as unlimited keeping qualities can be obtained.

By a formal vote the Association expressed its concurrence in the views stated in the paper. In the discussion following, the uses to which soft paraffin may be put, among others, in the preparation of citrine ointment, and the causes of the variation in melting point and other properties were dwelt upon.

Mr. J. L. Lemberger read a paper on *the Production of Milk Sugar in the United States*, in which, from official data, the value of the importation of milk sugar during the fiscal year ending June 30, 1873, was given at $3,233, and its steady increase was shown until for 1879–80 it amounted to $25,430. In the cheese and butter manufacturing districts of the United

States the whey is not considered, as formerly, valuable in stock raising, and is, therefore, comparatively a waste product. Samples of milk sugar made at a cheese factory formerly located in Holland Patent, N. Y., were exhibited, and it was stated that the manufacture of milk sugar had been recently commenced at Little Falls, N. Y.

*Fluid Extract of Jaborandi*, in a paper read by Mr. George W. Kennedy was proposed to be made by percolating 16 troyounces of pilocarpus leaves with 75 per cent. alcohol until exhausted, reserving the first 14 fluidounces and evaporating the weaker percolate until reduced to 2 fluidounces, when it is mixed with the reserved portion.

*The Preparation of Pilocarpina*, according to Mr. Kennedy, is best effected by exhausting, in a glass percolator, powdered pilocarpus leaves, with dilute hydrochloric acid (water f℥ xvi, acid f℥ i), evaporating in a water-bath to the consistence of a soft extract, diluting with warm water, filtering, adding sodium bicarbonate in slight excess, agitating with chloroform and evaporating the chloroformic solution spontaneously; by repeating the treatment with chloroform, the alkaloid may be obtained pure, as a soft, glutinous mass.

In the discussion following the reading of this paper, the recently reported change of the color of hair to a dark hue by the use of pilocarcarpus was alluded to, and Mr. Hallberg stated that he had observed the production of a green color by moistening test paper with a drop of an acid solution of pilocarpina and exposing the paper to ammoniacal vapors.

An adjournment was had until Thursday morning at 10 o'clock.

*Fourth Session—Thursday Morning, August 25.*

The minutes of the third meeting and of the Council were read and approved; the latter gave information of the election of 58 candidates previously reported and of the application for membership of 14 gentlemen.

*Soluble Phosphate of Iron* was the subject of a paper by Mr. L. Dohme. The following formula will yield good results: Dissolve phosphate of sodium 60 parts in water 300 p. and add to it, with constant stirring, solution of ferric tersulphate 70 p. Collect and drain the precipitate on a muslin strainer; mix it twice with water 500 p. and drain each time. Dissolve citric acid 15 p. in water 60 p., add sodium bicarbonate 14 p., heat the solution on a water-bath, add the precipitated ferric phosphate and, when dissolved, filter, evaporate and scale in the usual manner.

The salt is in transparent green scales, closely resembling the officinal pyrophosphate of iron, from which it differs in yielding a yellow (not a white) precipitate on decomposing its hot solution with potassa, filtering, neutralizing the filtrate with nitric acid and adding nitrate of silver. The scales contain about 15 per cent. of iron.

By dissolving separately in water citrate of iron 6 parts and phosphate of sodium 7 parts, mixing the solution, evaporating and scaling, a compound identical in appearance is obtained, but containing only 12·7 per cent. of iron. By the second process a salt with 15 per cent. of iron is obtained, however with an amount of phosphoric acid not quite sufficient for combining with the iron, by using 9 parts of citrate of iron and 7 parts of phosphate of sodium.

Two members of the Committee on Exhibition being indisposed, the President reconstructed the committee as follows: Messrs. J. D. Wells, T. Roberts Baker, W. S. Thompson, C. A. Weaver and J. H. Wilson.

Mr. E. B. Stewart exhibited large microscopic drawings of sections of the roots of *Apocynum cannabinum* and *A. androsæmifolium*, and read a paper describing the histological characters of both.[1] The two roots resemble each other, but the former breaks readily with a smooth fracture, while the latter is tough and woody, and has exceedingly small and easily overlooked starch granules.

In the discussion had on this paper it was stated that the root of Apocynum androsæmifolium is found in the Canadian drug market, but is rarely, if ever, to be procured in the market in the United States, where the root of A. cannabinum is almost always sold in place of it.

The Committee on the Vice President's Address approved of the suggestions contained therein, but did not consider any action by the Association necessary or desirable. The allusion made in the address to dissensions in the Pharmacopœia Committee were shown to be unfounded, and permission was granted for amending the address.

After some discussion on the proposed excursions the Association adjourned until 2 o'clock.

*Fifth Session—Thursday Afternoon, August 25.*

The minutes of the fourth session and of the Council were read and approved; the latter report the election of the 14 candidates previously announced and three additional applications for membership. A telegram from Detroit, inviting the Association to meet there next year, was read and referred.

Mr. H. E. Griffith gave the following formula for an *Emulsion of Cod Liver Oil*, which keeps for a long time (samples shown were a year old), separates but slightly and is readily united again by agitation.

*A.* Rub tragacanth, 45 grains, with glycerin 6 drachms, and hot water 2 ounces, and let stand until cold.

*B.* Dissolve calcium hypophosphite gr. xxxvi, sodium hypophosphite gr. xviii, and granulated sugar ℥iss, in sufficient hot water, and filter to make f℥v.

Add to *A* bitter oil of almonds ♏xxv, or oil of wintergreen ♏xl; then alternately and gradually cod liver oil f℥vi, and *B*, and finally stir thoroughly for two or three minutes with a Dover egg-beater.

A paper by Mr. C. B. Allaire on *the Substitution of Grape Sugar or Glucose for Cane Sugar in Pharmaceutical Preparations* reported the results of experiments with the Pharmacopœial syrups in which the substitution had been made. Of these, six fermented, five became mouldy, one was affected by mould and fermentation, and the following kept in good condition: garlic, iodide of iron, ipecac, rhatany from fluid extract, rhubarb, rhubarb aromatic, red rose, blackberry, sarsaparilla compound, squill, senega and tolu; perhaps a larger percentage might have remained unchanged

[1] A microscopical examination of the two drugs has been made by Mr. E. A. Manheimer in a thesis presented to the Philadelphia College of Pharmacy, and of which we intend to publish an abstract in our next number. EDITOR AM. JOUR. PHARM.

if made of a heavier gravity. None of the syrups kept better than if made of the same density with cane sugar, and the very noticeable deficiency in sweetness overbalances all other advantages that could possibly be gained; the saving in cost would be but slight, except for large manufacturers. Attention is called to the use of glucose as an excipient for pill masses which remain soft for a long time on account of the presence of dextrin and gummy matter.

In discussing this paper Mr. A. E. Ebert gave interesting and valuable information of the manufacture of glucose and grape sugar.

Mr. G. W. Sloan read a paper on *Solutions of Chemicals for Convenience in Dispensing*. One fluidrachm of these solutions, as prepared by the author, contained of chloral hydrate, calcium bromide, zinc bromide, lithium bromide and potassium acetate, sixty grains; of potassium iodide and potassium bromide thirty grains; of zinc chloride two grains; of corrosive sublimate, atropia sulphate, duboisina, eserina sulphate, one grain, and of strychnia sulphate half a grain. The menstruum is in all cases distilled water, except for corrosive sublimate alcohol, and for strychnia sulphate a mixture of one part of alcohol and three parts of water; the latter solution is disposed to crystallize if the temperature falls much below 50°F.

The interesting paper on *the Senega of Commerce*, by J. U. and C. G. Lloyd, is printed in full on page 481 of the present number.

In a paper on *the Quality of Phosphate of Sodium* Prof. Bedford referred to the results of the investigation of G. W. Kennedy, reported to the Pennsylvania Pharmaceutical Association in 1880; six samples of the salt contained traces of carbonate and between 25 and 60 per cent. of sulphate of sodium. In fourteen samples examined by the author, between 19·5 and 57·5 per cent. of sodium sulphate were found.

Mr. Stewart exhibited and explained a diagram drawn by Prof. Bastine, illustrating *an Instance of Atavism in Cypripedium spectabile*. The plant was collected in the pine barrens at the southern end of Lake Michigan, and the flower had three distinct equal sepals and no "slipper" or lip, but instead thereof three nearly equal petals, narrower than and alternating with the sepals; the ovary was not twisted, and but slightly bent to one side; the union of the stamens and pistil was less complete than usual and there were three distinct anthers alternating with the three distinct lobes of the stigma. Instead of one triangular fleshy body apparently occupying the place of the third stamen, there were two such bodies, alternating with the petals, and probably representing a second whorl of the same. A normal flower grew on the same stem.

*Precipitates in Fluid Extracts* was the title of a paper by Professor J. U. Lloyd, in which the more obvious and asserted causes of precipitation were discussed, such as oxidation by the atmosphere, reduction of alcoholic strength by evaporation, change of temperature and light. The author then dwelt upon the change of strength of the percolating menstruum caused by the presence of moisture in the vegetable powder, and upon the solvent power of solutions of organic principles upon other principles, and the changes which continually occur during percolation, in the

composition of these solutions, and consequently in their solvent power. By the first precipitate occasioned from these causes certain principles are removed, which in solution may have acted as a solvent for others; a precipitation of these latter is now induced, and further deposition may occur from a like cause; for these reasons sediments differ usually in appearance and composition at various stages of their growth. A number of experiments made with from 40 to 80 lbs. of drugs were described in illustration of these facts. Since precipitates *will* follow in percolates, the aim must be to so adapt the menstruum that it may hold in solution the *medicinal* principles of each drug, and render the precipitate *inert*.

Mr. C. S. Hallberg read a paper on *Powdered Extracts*, in which the influence of slight variations of menstruum and other causes upon the yield and consequently the strength of the extract was discussed. By making the percentage yield of extract uniform for the same drug, preparations are obtained bearing a fixed relation to the crude drug. A dilution of the extract is, therefore, advocated, so that the resulting mixture will represent double the weight of the drug. The most suitable diluent is milk sugar, a portion of which is incorporated with the desiccated extract while still warm, when the mixture is rapidly powdered, thoroughly triturated with the remainder of the diluent, and transferred to bottles.

Mr. Thos. J. Covell communicated the following formula for *Spiritus odoratus, Cologne Water:* Oil of lavender flowers ½ oz., oil of rosemary flowers ¼ oz., oils of neroli bigarade, petit grain and lemon peel each 1¼ oz., oils of orange peel and bergamot 2½ ozs., oil of rose geranium ½ oz., tincture of storax 2 ozs., Cologne spirit Oxxvi, orange flower water Ovi. Mix.

The preparation of a *List of Kansas Plants* had been undertaken by Mr. Robert J. Brown, but was not completed. Authority was given for publishing it if completed in time.

The reports on the progress of pharmacy and on the exhibition were referred to the Council, also the inauguration of proper steps for increasing the membership of the Association.

The committee on the next annual meeting reported in favor of holding it at Niagara Falls on the second Tuesday of September, 1882, which was adopted, and Mr. Hiram E. Griffith was elected Local Secretary.

Resolutions of thanks to the retiring officers and to the Local Secretary, Local Committee, citizens and press of Kansas City were passed, and the names of seven candidates for membership were reported.

Some discussion was had on entertainments connected with the annual meetings, and the expenses arising therefrom, and a committee of three, consisting of Messrs. G. J. Seabury, T. J. Macmahan and W. H. Rogers, was appointed to confer with the Council, with the view of making suitable arrangements, that would not conflict with the business of the Association, and of apportioning the cost of the entertainments upon the members participating.

After the reading of the minutes the Association finally adjourned.

Editorial remarks on this meeting and an account of the excursions to and beyond Kansas City have been crowded out of the present and will appear in our next number.

## FIFTH INTERNATIONAL PHARMACEUTICAL CONGRESS.

*First Day—Monday, August* 1.

The business of the fifth session of the International Pharmaceutical Congress was commenced on Monday, August 1, at the house of the Pharmaceutical Society, 17 Bloomsbury Square, London. There was a large attendance of foreign delegates, as well as of English pharmacists.

The President of the Pharmaceutical Society of Great Britain, Mr. T. Greenish, took the chair at 11 A.M., and opened the proceedings with an address of welcome, after which the Secretary, Mr. R. Bremridge, read the report of the Executive Committee, stating that about four hundred invitations to attend the Congress were issued; that it had been decided that the language of the Congress shall be English, but provision had been made for translations into French and German, and that invitations had been received for visiting the Gardens of the Royal Botanic and Zoological Societies, the International Medical and Sanitary Exhibition, the Horticultural Gardens, South Kensington, and the Kew Gardens before they are opened to the general public.

The Congress was constituted as follows:

*a.* The existing members of the Congress, *i. e.*, the President, Vice Presidents and Secretaries.

*b.* The President, Vice President, past and present members of the Council, Boards of Examiners and other officers of the Pharmaceutical Society of Great Britain.

*c.* The President, Vice President, past and present members of the Council, Board of Examiners and other officers of the Pharmaceutical Society of Ireland.

*d.* All duly accredited foreign visitors to the Congress.

*e.* The President and Vice Presidents of the British Pharmaceutical Conference.

*f.* The President and Vice President of the Trade Association of Great Britain.

*g.* The presidents or delegates of other pharmaceutical associations.

The following is a list of the delegates and other visitors who were present at the Congress:

A. Baier, Buda Pesth, Hungary. G. Baker, Rome. C. Blottière, Paris. H. Böttger, Bunzlau. Chr. Brunnengräber, Rostock. C. H. Burk, Stuttgart. A. Champigny, Paris. F. Champigny, Paris. L. Cornélis, Diest, Belgium. Wm. B. Cranwell, Argentine Republic. Egide Daenen, Brussels. Luigi De Cæsaris, Rome. E. Desnoix, Paris. Adhémar Dethan, Paris. J. E. De Vrij, the Hague. Josef Dittrich, Prague. W. F. W. Eckell, Christiania. Eusèbe Ferrand, Paris. William H. Ford, Melbourne. Jean François Gillaume, Paris. Norbert Gille, Brussels. R. Godeffroy, Vienna. G. Hansen, Christiania. Fred. Hoffmann, New York. R. Jacobi, Elberfeld. A. Jonas, Brussels. Adolph Lamury, Mons, Belgium. G. Lotze, Odense, Denmark. I. Martenson, St. Petersburg. H. P. Madsen, Copenhagen. C. Méhu, Paris. Adr. Nicklès, Benfeld, Alsace. Oscar Oldberg, New York. Ch. Patrouillard, Gisors, France. Arthur Petit, Paris. A. Poehl, St. Petersburg. Jules Putsage, Mons, Belgium. J. W.

Rehe, Cologne. Jules Reynaud, Paris. A. Sauter, Geneva. Carl Schacht, Berlin. Wilhelm Sebardt, Stockholm. Nicola Sinimberghi, Rome. Frank R. Squire, San Remo. Robert Stoll, St. Petersburg. Józef Török, Buda Pesth, Hungary. Julius Trukóczy, Laibach. Henri Verhassel, Antwerp. A. von Waldheim, Vienna. M. Brisbane Ward, Queensland.

Delegates were also present from Ireland and from some local associations in Great Britain.

Committees were appointed as follows: Messrs. Madsen, Petit, Godeffroy, Butt and Robbins, to verify the credentials of delegates, and Messrs. Brunnengräber, Martenson, von Waldheim and Carteighe, to draw up a list of nominations for election of officers of the Congress.

After a short retirement, the Committee of Nomination recommended that Dr. Theophilus Redwood, of London, should be elected as President of the Congress. This recommendation was received with acclamation by the meeting, and Prof. Redwood accordingly took the chair.

The following additional officers were elected:

Vice Presidents—Chr. Brunnengräber, Rostock; J. Dittrich, Prague; N. Gille, Brussels; G. Lotze, Odense; H. P. Madsen, Copenhagen; T. Hansen, Christiania; I. Martenson, St. Petersburg; A. Petit, Paris; A. Poehl, St. Petersburg; W. Sebardt, Stockholm; N. Sinimberghi, Rome; J. Török, Buda Pesth; A. von Waldheim, Vienna; T. Greenish, London; R. Reynolds, Leeds; Peter Squire, London. Secretaries—M. Carteighe, London; R. Godeffroy, Vienna; F. Hoffmann, New York; C. C. Payne, Belfast; Carl Schacht, Berlin.

The report of the Executive Committee, previously read, was approved and adopted, with the recommendations, and the members of that committee were appointed the Executive Committee of this Congress, and Mr. R. Bremridge the General Secretary to the Congress.

Amongst the regulations referred to were two of some importance, viz., that all papers should be read in English by the authors, if present, if not, by the Secretary, and that in discussion no speech should exceed five minutes in length.

*International Pharmacopœia.*—This subject was then taken up for consideration, and a number of communications were read. A paper by Mr. Dittrich, of Prague, gave a history of the previous transactions on this subject, and made the following propositions:

1. That the resolutions of the Congress in St. Petersburg in 1874 should be generally confirmed.[1]

[1] From the resolutions passed at the Fourth International Pharmaceutical Congress at St. Petersburg we print the following, referring to the scope and arrangement of the work:

"(5). The International Pharmacopœia is not to supersede national pharmacopœias, but it is essentially desirable that in construction of the latter the fundamental principles of the International Pharmacopœia should be adopted.

"(6). Without anticipating the labors of the Commission, it is the desire of the Fourth International Pharmaceutical Congress that the following points should be borne in mind in the construction of an International Pharmacopœia:

"(*a*). That the language of the Pharmacopœia should be Latin, as decided at the Congresses of Paris and Vienna.

"(*b*). That the metric system shall be adopted in the formulæ of preparations.

"(*c*). The nomenclature is as far as possible to be uniform.

"(*d*). With ordinary drugs only the names to be given.

"(*e*). With potent drugs the minimum amount of active substance is to be mentioned.

"(*f*). Galenical preparations, such as tinctures, extracts, etc., should be made as nearly uniform as possible.

„(*g*). The maximum admissible amount of impurity in chemical preparations is to be stated."

2. That for elaborating the scheme of an International Pharmacopœia a commission of at most nine prominent practical pharmacists should be appointed.

3. The principles laid down by the St. Petersburg Congress (1874) should be acted upon as far as possible. Further, the work should be limited to the most important potent crude drugs, and to those powerful compounded preparations which are in universal use and must be kept. In regard to the latter smaller doses should be recommended, and the average strength should be in accord with the pharmacopœias of the larger States. For galenical preparations an exactly uniform method of preparation might be observed.

4. This scheme should be printed and further carried out according to the resolutions of the St. Petersburg Congress concerning Question IV. It is self-evident that the Pharmaceutical Society of Great Britain should occupy henceforth the place of the Pharmaceutical Society of St. Petersburg.

Mr. Martenson, of St. Petersburg, referred to the difficulties heretofore encountered, and to the absence from the Fourth International Pharmaceutical Congress of representatives of countries so important as Germany and America, and submitted the following propositions:

1. To lay before the governments of the several States concerned the necessity for an International Pharmacopœia.

2. To submit to them a request to send at least one representative to a commission at their expense.

3. To appoint a "Commission for the drawing up of an International Pharmacopœia," consisting of representatives of pharmaceutical societies in the several countries. In that commission the smaller States should be allowed to be represented by foreign commissioners. The conclusions of the commission to be binding upon the several countries.

4. Members and presidents of this commission could suitably be selected at once by the Congress as well as the place of meeting, which should be as central as possible.

5. The commission to have power to obtain further assistance in the work.

6. A plan for the construction of the International Pharmacopœia must first be drawn up and communicated to the pharmaceutical societies of the several countries for their approbation.

7. That after the final construction of the Pharmacopœia the commission should cause the issue of a sufficient number of copies, possibly in the Latin language, to be sent to the several governments, after which each country can have printed as many impressions as it may require.

It might be, indeed, quite unimportant whether the formula for a cerate in a nothern country differed from that of a southern country, or whether the characters of sugar, collodion, etc., were somewhat different. But it would be advantageous if certain potent tinctures, solutions, acids, etc., were made of equal strength and uniform quality in all countries, and if they bore the same designations. If a pharmacopœia of this kind, however modest in its character at first, should actually become internationally naturalized, it would not want either for friends or for future development on a broader basis.

The equalization of the strength of potent drugs having been thus introduced, the subject was further discussed in a paper by Mr. Squire (see page 499) and in several communications.

Prof. E. Schaer, of Zurich, pointed out the importance of such a measure for those traveling in foreign countries, and continued:

"It seems very desirable—and worthy of thorough discussion—that an international legal codex concerning heroic medicines should contain not only the galenic preparations (as extracts, tinctures, solutions, etc.), but also those chemical preparations which, not being absolutely pure and distinct chemical substances, must be declared a mixture of substances and vary as much in composition as in medico-dynamic effect, according to their mode of preparation. From this point of view, the said international codex ought to include the exact description of the characters of several highly poisonous alkaloids, like aconitina, digitalin, veratrina and a few others whose chemistry, as yet, cannot be judged as entirely settled and which, besides, occur in commerce, not as pure chemicals, but as more or less impure substances.

"The question of the international uniform strength of a certain class of chemico-pharmaceutical substances suggests the idea of publishing at the same time an *international* table (*invested with legal authority*) of a certain convenient number of "doses maximæ" of heroic substances, such as those in constant use in many States of the Continent. The legal use of these tables, stating the maximum doses "pro die," and also the "doses simplices maximæ," which the pharmacist is bound not to transgress without certain legal formalities, has been shown in many countries to give a direct control over medical prescriptions to the pharmaceutical chemist, so that it would well deserve mature examination and, in the case of approval by a majority of States, might be introduced in the international codex for heroic preparations.

"In case of the suggestion meeting with general approval, this list of maximum doses would also represent the official list of compounds and chemicals to be included in the said codex."

The paper further suggested, after the adoption of these measures, an international conference of official representatives appointed by the various governments, for publishing the international codex.

A communication by Prof. Maisch, of Philadelphia, referred to this subject as follows:

"If the Congress could have met a year or two ago and could have agreed upon a plan for the *equalization of the strength of potent preparations*, I think that the United States would have gladly responded to the agreement by adopting it. With the considerable difference in the strength as authorized by the British, French and German Pharmacopœias, I fear that we shall have here modifications from our old standards—perhaps unimportant ones—which will not bring us into nearer harmony with Great Britain than heretofore, nor with any one of the conflicting authorities of the European Continent; and it will probably not be before 1890 that the equalization proposed can be practically carried out here.

"But—and that seems to me the most important step in the proper direction—the idea of a universal pharmacopœia, as heretofore suggested, assumes the—in my opinion—only feasible plan of equalization of strength of drugs and preparations which are likely to be especially hurtful; and if the Congress can with unanimity agree upon these points, I think the result will be as salutary as that of the convention of the Scandinavian countries."

Mr. Chr. Brunnengräber, of Rostock, made the following statement:

"From an international point of view, the trade in medicine is becoming more and more important by reason of the steadily increasing spread and multiplication of means of communication, and it therefore requires the working out of formulæ for those pharmaceutical preparations which contain powerful agents, as well as an effort to obtain the admission of these formulæ into all pharmacopœias, so that uniformity in the composition of these preparations may be attained. The preparations in question should be arranged in alphabetical order. The several constituents should not be specified by weight, but only in parts. The characters of

the preparations, appropriate methods of testing them and the way of keeping them should also be indicated."

Mr. James T. Shinn, of Philadelphia, suggested the propriety of making all preparations of the most powerful medicines, such as opium, arsenious acid, etc., of uniform strength in all pharmacopœias and the adoption in all formulæ of parts by weight, in place of measures of capacity and definite weight.

Mr. L. Myers Connor, of Dallas, Texas, suggested the harmonization of the pharmacopœias of Great Britain and of the United States.

Prof. Emlen Painter, of San Francisco, proposed the adoption of the metric system of weights and measures and the designation of all pharmacopœial quantities by weight.

On resuming business after luncheon, Mr. Madsen opened the discussion by referring to the importance of the question and to the action taken by the Fourth Pharmaceutical Congress, as well as by the International Medical Congresses, held in Brussels at 1875 and at Geneva in 1879. The committee of physicians and pharmacists appointed at Geneva had accomplished nothing—owing to the impossibility of settling such matters in writing—except establishing the fact that a perfect concord of opinion on this matter exists between doctors and pharmaceutists, and that the wish to see the creation of a universal pharmacopœia has become stronger and stronger. From a practical point of view, we ought to begin in a small way, and this thought is realized in reducing the question from that of a universal pharmacopœia to that of an "equalization of official pharmaceutical preparations containing potent drugs." The speaker considered conferring together, from time to time, by word of mouth, to be absolutely necessary in order to get the work finished, and proposed the following resolution:

"That this Congress invites the Pharmacopœia authorities of all countries to send a delegate to a Commission, meeting in a central European city, for the purpose of taking steps to equalize the strength of pharmaceutical preparations containing potent drugs and, if possible, also of obtaining uniformity in other respects between the pharmacopœias of various countries."

Mr. Martenson, St. Petersburg, explained the reasons why the work of the International Pharmacopœia, which was commenced at St. Petersburg, was not completed. The committee, after a large amount of correspondence, drew up a proof of the Pharmacopœia as far as the letter O, but unfortunately that work was all lost through a mistake of the Secretary, Mr. Jordan, who, when suffering from the illness of which he had since died, destroyed the MS.

Mr. Poehl, St. Petersburg, said the Russian Government was prepared to take steps for the preparation of an International Pharmacopœia and for the appointment of a commission to carry out this object.

Mr. Méhu, Paris, referring to the Universal Pharmacopœia prepared in Paris, said that a translation was to have been made into Latin by Mr. Jordan, and it was quite possible that that translation or a part of it might have been burnt. The Pharmacopœia itself was intact and was now producible.

M. Petit, Paris, said it was his opinion that pharmacy ought to occupy

itself with an International Pharmacopœia of powerful drugs, but it was quite possible also to undertake the construction of a Universal Pharmacopœia; materials for it existed, it was highly desirable and it was quite possible to accomplish it.

Mr. Martenson desired to add, by way of explanation, that the manuscript which had been burnt was the one prepared at St. Petersburg.

Mr. Gille, Brussels, remarked that there was, at the present moment, a congress on medical science just commencing its sittings in London, and one of its meetings would be devoted to the subject of an International Pharmacopœia. He proposed that an official letter to the medical body be written, stating that the members were engaged on this question and would be happy to assist at the meeting and give the benefit of their practical experience on the question. The Congress might also express its thanks for the sympathy which had been shown to pharmacists by medical men.

Mr. Sinimberghi, Rome, agreed with this proposal. He had been appointed as a representative to that assembly by the Minister of Public Instruction, he being of opinion that this assembly would form part of the Medical Congress and that pharmacy would be, as in other places, a part of the Medical Congress. With regard to the pharmacopœia, he said the Italians, unfortunately, came into the concert of civilized nations very late and, therefore, they had not as yet a national pharmacopœia of their own, but the preparation of one had been entrusted to his friend Signor Cæsaris and himself, on which they were at present engaged. He hoped these resolutions would be carried out, because it would assist them very considerably in the formation of the National Pharmacopœia if an International one could be agreed upon, and they would be also able to advise their government to adopt it.

Mr. Greenish explained the action taken by the Congresses at Vienna and St. Petersburg relating to an International Pharmacopœia, and that it was not Dr. Méhu's manuscript, but a new pharmacopœia, drawn up from the corrected proofs which were sent to the committee at St. Petersburg by the different members of the Congress, which had unfortunately been burnt.

Mr. Brunnengräber, Rostock, said he thought all present were agreed to support the proposition of Mr. Madsen. The MS. which Mr. Méhu had in his hand he thought could only be used as useful material for the work. With regard to an International Pharmacopœia, nothing tangible was produced, because the work was not conducted according to the directions given. It would be impossible to construct an International Pharmacopœia in the manner discussed in the various Congresses, and he thought to really produce a satisfactory result they must be content to begin in a small way; he would, therefore, propose the addition to Mr. Madsen's motion of these words, "and recommends that a committse be appointed to do the necessary work and that the Pharmaceutical Society of Great Britain be asked to undertake to carry it out."

Mr. Hampson, London, regarded the preparation of an International Pharmacopœia something like the making of a universal language; it was

a grand thing to look forward to, but it was quite impossible, at any rate at present. He felt sure that any steps to be taken, if to be useful, must be from the simple to the difficult and they must be content with small things to begin with. He explained that the Pharmaceutical Society of Great Britain, although it had been in existence for something like fifty years, had as yet no voice in the making of the Pharmacopœia. Able English pharmacists had been employed to assist, but not as representing that Society. He supported the proposal of Mr. Gille.

Mr. Gille explained that the Pharmacopœia should be made out in two distinct parts, that the first should contain the results already arrived at and should be printed and despatched, first of all to Russia, and that the various questions relating to the second part should be postponed for further discussion and arrangement until a more deliberate opinion had been formed upon it.

Mr. Méhu, Paris, said there was but one MS. and that it was not divided into two portions. To some parts of it notes had been appended, but it still remained one. The pharmacopœia so arranged was of an original character; all party spirit had been rigorously excluded from it. It was now ready to be printed, and when printed it could be judged of by all. He suggested that as soon as it was in a proper shape to be printed, a commission should be appointed to consider it, and in three months it might be ready.

Mr. Martindale, London, supported the motion. He said there were really two subjects before the Congress, one of equalization of the strength of officinal preparations and another the formation of a Universal Pharmacopœia. With regard to the production of such a work he thought it should be left to private enterprise, much in the same way as Mr. Jourdan had prepared his. The International Pharmacopœia would be distinct altogether from a Universal Pharmacopœia. A commencement should be made by forming a commission to equalize the strength of preparations containing potent drugs; and, preceding this, to make uniform the strength of acids and of spirit used in the different countries.

Mr. Carteighe, London, would not destroy the peculiarities of pharmacy in any country; but it was necessary for the public health and public safety that there should be uniform strength in potent medicines. Therefore he agreed with all the speakers—and he believed English pharmacists were unanimously agreed—that the very large ideas of their Paris friends were such as could not be recommended, and even if they could recommend them as pharmacists, they were certain that the medical profession could not be persuaded to follow them.

Mr. Petit, Paris, said the discussion rather differed from conclusions arrived at by previous Congresses, which favored the formation of a Universal Pharmacopœia. It was never meant, however, to abolish national pharmacopœias. The Pharmacopœia which had been drawn up by the French Society had already been adopted in some places, as for instance in the Argentine Republic. It seemed as if pharmacists would be rather behind the spirit of the age if they did not attempt to frame a Universal Pharmacopœia.

Mr. Symes, Liverpool, trusted that the meeting of this Congress would assist in securing the co-operation of the medical profession. The discussion had assumed a practical character, and every speaker seemed desirous that the Congress should admit not only the principle but very soon get to work in carrying it out.

Mr. Godeffroy, Vienna, said he thought all the members of the Congress were of opinion that the time was not yet come for a universal pharmacopœia, because it was simply impossible; he favored Mr. Madsen's proposal, and hoped that attention would also be given to nomenclature, weights and temperature in the various countries.

Mr. Balkwill, Plymouth, thought that the Congress could hardly send a message to the Medical Congress unless the members of it were of one mind as to what was possible. A table of exchange of convertible strengths of the different preparations was quite possible to be carried out immediately; in fact, it could be prepared and printed before the year was out. Then it seemed to him there would be within easy reach an International Pharmacopœia representing the most powerful drugs, and behind that there was the larger question, which would take a very long time before anything was done practically.

The President said the subject brought before the Congress in the motion had been very fairly and dispassionately discussed; the motion was that this Congress invite the pharmaceutical authorities of all countries to send delegates to a committee meeting in a central European city, for the purpose of taking steps to equalize the strengths of pharmacopœial preparations containing potent drugs. Of course, Mr. Madsen, who had introduced the subject, was entitled to offer any remarks he wished in reply.

Mr. Madsen said he could only thank the members of the Congress for the kind manner in which they had taken up the proposition. With regard to Mr. Méhu's work, it was too great at present. They should commence by small things, and go on to greater. They had commenced a Universal Pharmacopœia at St. Petersburg; the times had now changed, and he thought at present they had to be content with the suggestion he had made. As to the proposition to send a letter to the Medical Congress, he did not think it would be dignified on their part to do so without having been invited to take any part in the discussion. Pharmacists had commenced this work themselves, and they should carry it on; though, of course, if the medical authorities liked to invite their co-operation, they would be very glad to give it to them.

The final decision of the question was postponed until the next day, and the meeting then adjourned.

*Second Day—Tuesday, August 2.*

The Congress reassembled on Tuesday morning at 11 o'clock, Professor Redwood in the chair. The consideration of *Pharmacopœia revision* was opened with the reading of a paper by Mr. Carteighe (see page 497), followed by a communication from Mr. Chr. Brunnengräber, Rostock:

For the revision of a national pharmacopœia it is necessary that there should be a permanent commission, comprising among its members the largest possible number of pharmacists. It should be the duty of this com-

mission, during the periods between the publication of the successive editions, to investigate such new drugs as make their appearance in the drug market, in order to determine the characteristics of their genuineness, and, at the same time, to submit the formulæ given in the pharmacopœia to a continuous examination.

The results of this work should be brought to the knowledge of those interested in an appropriate manner, by official publication.

The following communication from J. M. Maisch, Philadelphia, was read:

I shall be very much mistaken if the Congress do not demand, as a right, a larger representation of pharmacists in the periodical revisions of the pharmacopœias; in this respect, it seems to me that there can be but unanimity of views. In this connection, however, I think it would be well to agree also upon the periodicity of revision. While this in Europe is usually left to various circumstances, we have in the United States, since 1820, a decennial revision. As weighty an authority as Dr. Squibb has advocated a new revision every five years, a period which, urgent cases excepted, seems to me to be entirely too short; while I approve of official modifications and additions, like the Addenda to the British Pharmacopœia, at any and all times.

The discussion which followed was very interesting in explaining the manner in which the revision of the pharmacopœia has been accomplished in the different countries, and which may be summarized as follows:

*Germany.*—The Revision Committee is called together when necessary; the desire is to have a permanent committee, in which pharmacists and chemists should be equally represented with medical men.

*Great Britain*—The preparation of the Pharmacopœia is in the hands of medical men, aided by intelligent pharmacists, who have no vote.

*France.*—The committee is composed of professors of the school of medicine and the school of pharmacy and the members of the Society of Pharmacy. The work is done by the latter. Pharmaceutical members have only a consultative voice; but the committee never forbids pharmacists to vote or to bring forward motions.

*United States.*—The committee consists of physicians and pharmacists, the latter being in the majority, and the former being ready and willing to accord to the pharmacists the right to decide all questions of a purely pharmaceutical character.

*Belgium.*—The committee consists of three pharmacists and two medical men.

*Russia.*—The council is composed of 16 medical men and two pharmacists; the latter prepare the pharmacopœia and submit it to the medical council, whose approval is only a formality.

*Italy.*—The commission at first appointed consisted of physicians, but upon the representation of the Italian pharmacists the government appointed an equal number of pharmacists.

*Holland.*—The commission in 1864 consisted of two professors of botany and pharmacology, one professor of chemistry and four pharmacists. At the request of the pharmacists, a physician was also appointed to advise what remedies ought to be introduced into the pharmacopœia.

*Austria.*—The commission, which is not a permanent one, consisted of six chemists, the other members having been professors of botany and of chemistry.

*Denmark.*—The present pharmacopœia, which is 13 years old, was prepared by a commission consisting of eight physicians and two pharmacists.

On resuming business after luncheon Mr. Thomas Greenish took the chair, and explained the foundation of the *Hanbury Medal*, in memory of the late Daniel Hanbury. He continued:

It was resolved that the medal should be awarded "for high excellence in the prosecution and promotion of original research in the natural history and chemistry of drugs," and that the award should be made by the respective presidents for the time being of the Linnean, Chemical and Pharmaceutical Societies and of the British Pharmaceutical Conference, together with one pharmaceutical chemist, who should, prior to each award, be nominated by the last-named two presidents.

The medal has, on this occasion, with complete accord been awarded to Professor Flückiger, of Strasburg, and I am sure that it will give general satisfaction that the valuable labors of such a man as Flückiger, coadjutor with Daniel Hanbury in the Pharmacographia, have received recognition in the award of the first Hanbury Medal. The only alloy to this pleasure will be to find that Professor Flückiger's state of health prevents his being present to receive it.

Dr. Brunnengräber, President of the German Pharmaceutical Society, received the medal on behalf of Prof. Flückiger, and expressed his thanks in feeling words. The father of Daniel Hanbury, Mr. Daniel Bell Hanbury, was present, and, after expressing his heartfelt satisfaction, he left the room, all the members of the Congress standing up while he did so.

The President of the Congress having resumed the chair, Mr. Carteighe, on behalf of the officers of the Congress, submitted the following resolution with regard to the revision of the Pharmacopœia, which practically consisted of Dr. Brunnengräber's paper:

That in the opinion of the Fifth International Congress, meeting in London, it is the duty of all pharmacists to urge that in the future revision of the National Pharmacopœia it is necessary that there should be a permanent committee or commission, comprising among its members the largest possible number of pharmacists. It should be the duty of this commission, during the periods between the publication of the successive editions, to investigate such new drugs as make their appearance in the drug market, in order to determine the characteristics of their genuineness, and, at the same time, to submit the formulæ given in the Pharmacopœia to a continuous examination. The results of this work should be brought to the knowledge of those interested, in an appropriate manner, by publication before the final promulgation of that work.

The resolution was carried unanimously.

A paper on *Pharmacopœial Nomenclature* was read by Oscar Oldberg, New York, containing the following propositions:

(1). That the Berzelian system of chemical nomenclature, as illustrated in a general way by the pharmacopœias of the Scandinavian countries, France and Spain, etc., be adopted.
(2). That in naming each chemical respectively, that part of the name which refers to the base shall be in the adjective form, and placed before the other so as to combine alphabetical order with systematic classification.
(3). That the Latin names of alkaloids shall have the termination "-ina."
(4). That the Latin names of glucosides and other neutral principles shall have the termination "-inum."
(5). That the term ætheroleum be adopted to designate volatile oil.
(6). That in naming solutions, tinctures, extracts and other pharmaceutical preparations the most important constituent be named in each

case, respectively, as far as practicable, and that that part of the name of each preparation shall be placed first which refers to such constituent.

With the consent of the author, the paper was referred to the commission proposed to be appointed on the International Pharmacopœia.

The same course was taken with the paper on *The Disadvantages of Therapeutical Conservatism in Reference to the Pharmacopœial Materia Medica*, by Prof. O. Oldberg, in which the ground was taken that a pharmacopœia should have no weight as a purely therapeutic guide, but should include all substances used in the materia medica to any considerable extent, and all new remedies which seem to possess therapeutic value.

*Pharmaceutical Education* was the next subject brought forward, when Mr. Chr. Brunnengräber read the following paper on pharmaceutical education in Germany:

Pharmaceutical instruction in the German Empire is regulated by two edicts of the Imperial Chancellor, Prince Bismarck: of March 5, 1875, "Concerning the Examination of Pharmacists," and of November 13, 1875, "Concerning the Examination of Pharmacists' Assistants."

The course of instruction comprises:

(1). *The School Training.* There is required either—

(*a*). The qualification certificate, requisite for the one year's voluntary army service, from a recognized school in which Latin is a compulsory subject; or,

(*b*). The certificate of fitness for entry at a university.

(2). *The Apprenticeship.* This, in the case of pupils failing under (*a*), lasts for three years, and of those under (*b*) two years.

(3). *The Assistants' Examination* takes place, upon the request of the master of the apprentice, before a government board of examiners, consisting of one of the higher medical officials and two pharmacists.

(4). *The Period of Service as an Assistant* lasts three years, and at least one-half of that period must be spent in a German pharmacy.

(5). *The Study at a University* extends over at least three sessions (1½ years), and comprises general and pharmaceutical chemistry, general and pharmaceutical botany, pharmacognosy, qualitative and quantitative chemical analysis (including poison and food analysis) and physics.

(6). *The State Examination* is undergone before one of the twenty-three examination commissions, each consisting of a professor of chemistry, of physics and of botany, and two pharmacists.

As in the course of time it had become manifest from the practical working of these examination regulations that many points in them require further reform, the German Pharmaceutical Association, in 1878, appointed a committee to confer upon the reform of pharmaceutical education. After this committee had continued its labors two years, as described in two reports, it last year submitted to the general meeting in Breslau propositions for reform, and it was resolved at that meeting that these should be laid before the Imperial Chancellor, and recommended to his consideration.

These suggestions are in reference to:

(1). *The School Training:* That the standard should be raised to the level of producing a certificate of fitness to attend a university by all intending to devote themselves to a pharmaceutical career; or, with that, if possible, the official declaration of the equal value of the certificate relating to the assistant's examination.

(2). *The Apprenticeship:* Would then last only two years.

(3). *The Study at the University:* That it should be prolonged over at least four sessions (2 years), and extended to microscopy, mineralogy, toxicology and zoology; further, that those pharmacists who wished to obtain the qualification to act as medical and sanitary officials, vis-

itors of pharmacies, examiners and professors of pharmacy should, after a further stay of at least two sessions, have to undergo a corresponding second examination.

A communication from Professor E. Schaer, of Zurich, makes the following suggestions:

(1). That the period of the academical studies of the pharmacist be not shorter than two years (or 4 semesters), and further, that education essentially pharmaceutical be in the hands of teachers belonging to the pharmaceutical profession.

(2). That besides the general knowledge of the use of the microscope and microscopical work in general botany, there be also special microscopical study in respect to pharmacology, hygiene and toxicology, and that pharmaceutical examinations be made to include this kind of knowledge, as is already the case in several States.

(3). That the "*history of pharmacy and of drugs*" be introduced in a more or less official way into the studies of the pharmacist, either in form of lectures on the subject, or, as regards the history of drugs in connection with pharmacology, in the way followed in the Pharmacographia.

(4). That in order to facilitate contact between the medical and pharmaceutical professions, pharmaceutical studies should be supplemented by "*medical toxicology*" and "*physiological chemistry*" (including practical laboratory work), inasmuch as these two branches are deemed suitable to the pharmaceutical chemist, and also as they can be treated and taken up without previous exact anatomical and physiological training.

A communication from J. M. Maisch, Philadelphia, was as follows:

"Concerning pharmaceutical education, I do not think that there will be any difference of opinion that it should make its aim as high as possible. While I feel satisfied that the existing conditions in Great Britain differ very materially from those of Continental Europe, and that ours assimilate most to those of Great Britain, still the conditions in the United States are so exceptional that it will be difficult to reach in this matter a conclusion which, while it may be entirely applicable to Great Britain, would also with equal force apply here. Of the high aim and good intentions existing on this side of the Atlantic I am thoroughly convinced; of the means of reaching those aims, there may be honestly held different views. But while I doubt not that, in the main, we all agree about the educational standard to be reached by those to whom the practice of pharmacy is to be entrusted, I think that not only the facilities should be offered, but also a love should be awakened and cultivated for original research, commensurate to the large number of well-educated pharmacists and to the importance of the material handled."

Mr. J. Dittrich, Prague, communicated the following:

"This question appears as a permanent feature in the programmes of all the International Pharmaceutical Congresses hitherto held. Individual States have since, more or less, carried into effect the desire entertained. The increased demands upon the pharmacist appear to make a wider general education desirable.

"As to what relates to the department of autonomous pharmaceutical study, encouraging points of support are found in the Ecole Supérieure de Pharmacie de Paris and in the Pharmaceutical Institute added to the University of Dorpat.

"If possible, only pharmacists should teach as professors in pharmaceutical schools, and this is especially of importance in relation to pharmaceutical chemistry."

Professor Emlen Painter, San Francisco, suggested for colleges of pharmacy the requirement of a preliminary education and the adoption of a

uniform system of examinations, so that diplomas might be recognized universally.

Mr. C. R. Blackett, Melbourne, suggested some systematic attempt towards attaining uniformity in pharmaceutical legislation and education in all parts of the British Empire.

The meeting then adjourned.

*Third day—Wednesday, August 3.*

The Congress resumed its sitting on Wednesday morning, at 11.30, under the presidency of Professor Redwood, when the discussion was commenced on the papers on Pharmaceutical Education, read on the previous afternoon. The information given may be summarized as follows:

*France.*—Before entering a pharmacy, the young man must obtain the degree of Bachelor of Science, then spend three years in a pharmacy as apprentice and then three years at a school of pharmacy, before passing his examination. Second-class pharmacists, which will most likely soon be abolished, required to spend only one year at school, could locate only in small towns and on removing into another Department were obliged to pass a fresh examination. There is no limitation on the number of pharmacies. Pharmacists are allowed to sell medicaments, but not any compound without the prescription of a medical man; this, however, is practically not carried out and the aim is to be allowed to sell all prescriptions and medicaments on demand. The position of a pharmacist of the first class is equal to that of a doctor of medicine, and in the army the rank of a medical man and of a pharmacist is exactly the same, the grades being lieutenant, captain, general, etc.

*Italy.*—Three years' study at a university is required, including the branches of mineralogy, toxicology and zoology and afterwards four years' practice in a pharmacy of the first class. An assistant is not allowed to put up prescriptions unless he has passed an examination before a committee appointed by the government. Second-class apothecaries have been abolished; but the aim is to have again two diplomas and to permit pharmacists of the second class to locate in small towns only. The rights of pharmacists are the same as in ancient times, except in Florence, where they are obliged to sell cigars and other things in order to make a living; a limitation of number is aimed at.

*Sweden.*—The course is about the same as in Germany. The whole system of pharmaceutical education and examination comes entirely within the purview of the Department of Public Health, and the whole of the examinations are conducted by the pharmaceutical school at Stockholm, which is the only school of pharmacy in Sweden. That school was originally established by the Apothecaries' Society and was maintained largely at its expense, but the government has this year assumed entire charge of the Institute, which is hereafter to be a public school, supported exclusively at the public expense. The immediate supervision of the school is entrusted to a board of six members, four of whom are the professors and two practical pharmacists, the whole action being subject to the approval of the Department. Two of the present teachers of the school are pharmacists.

*Holland.*—Since 1864, before entering pharmacy, a candidate must pass a literary examination, which includes Dutch, French and German, the elements of Latin; he must also pass in arithmetic and mathematics to a certain point. Having passed that, the habit is to go to the university, of which there are four, at Leyden, Groningberg, Utrecht and Amsterdam. In order to be admitted to the university, they must first pass the literary examination, then they pursue the same course as other students and have to pass a scientific examination by a board of professors of natural philosophy, chemistry, botany, zoology and so on. Having done that, they are called candidates of pharmacy, and every year the king appoints a board of examiners, to which those who have successfully followed out their studies in the university may present themselves for examination. The majority of that board consists of pharmacists. There they are examined in the application of botany and microscopy with regard to drugs. If successful in that, they are submitted to a practical examination which lasts a week, and all the operations must be done in the presence of one or two examiners. The candidates have to make toxicological analysis, to detect adulterations in medicine, to prepare at least two galenical preparations and to make some chemical preparations. After that they are passed. The whole of this may be passed in one year, if they like, but it is almost impossible; and before passing he last examination they must produce a certificate of having been at least two years practising pharmacy. As to their rights, the preparation and sale of medicine is not allowed to any one except a pharmacien, but he must not prescribe. They are, however, more free than in France; if applied to for any drug the pharmacist may sell it, but must not give advice nor sell poisons. There are many small villages where there are no pharmacists, and there are physicians or general practitioners who have the right to deliver to their patients the medicines which they prescribe, but they cannot do so if there is a pharmacist there. Again, in every university there is a professor of pharmacy, and a pharmacist may become a doctor of pharmacy when he is the equal of a medical man having studied at the same university. Very few avail themselves of this honor because the course prescribed is rather long.

*Belgium.*—Pharmaceutical education is perfectly free. It is organized at four universities, two of which are State establishments. Diplomas are granted by a board at each university, and also by a central board which is deputed by the government to examine pharmacists. No one is admitted to the university without having a sufficient preliminary education, and to insure this a preliminary examination is required. It is anticipated that the regulations will be revised next year, but at present the examination requires a knowledge of physics, botany, the elements of mineralogy and zoology. There is then a practical examination in chemistry. Having passed that, the candidate presents himself, either at one of the universities or the central board, where he is examined in the natural history of drugs and medicaments, and in theoretical and practical pharmacy, and the elements of toxicology. When he has passed these two examinations, he goes on to the third which is purely practical, in which he has to make several preparations, pharmaceutical, galenical and

chemical, and has also to make toxicological analyses, and to detect adulterations of medicines. After that he must make microscopical examinations and general analyses. As to the rights and privileges of pharmacists, there are no limitations on their number, and he may sell anything he likes without the prescription of a doctor, even poisons, on taking certain precautions. He has the exclusive right to sell all medicines, but, as in France, certain articles—even poisons—used in the arts are sold by others. A doctor is not allowed to sell any drugs, but he may deliver medicines to his own patients, but must not keep an open shop. It is only in country districts, where it is not possible for a pharmacist to live, that medical men dispense their own medicines.

Brief remarks were also made on the condition of pharmacy in Denmark, Austria and Hungary, and on the desirability of still further raising the standard of requirements. The following resolution was offered by Mr. Petit, of Paris:

"It is desirable that in all countries the literary studies required from the pharmaceutical chemist be the same as those required to obtain the diploma of a doctor of medicine."

After a recess for luncheon, Mr. Petit's motion was ordered to be placed on the minutes to be considered in future years.

Mr. G. F. Schacht addressed the Congress at some length on the state of pharmacy in Great Britain, after which a paper by Mr. T. Barclay, of Birmingham, was read on *The Relation of Pharmacists to the Medical Profession and the Public.*

The paper is not adapted for condensation. A short communication on the same subject, by Mr. Chr. Brunnengräber, Rostock, is as follows:

"In order to take up a free and independent position in all respects the pharmacist must acquire the confidence of the public as well as of physicians by observing the strictest fitting limitations in carrying on his business and also by evincing scientific and practical skill in its conduct. In particular he has to abstain from the public recommendation of secret remedies, patent medicines and specialities, and from the practice of medicine.

"But the practice of medicine from the pharmacist's point of view is to be regarded in such a light that, while the pharmacist may continue to supply the public when required with different remedies, he is not justified in attempting to ascertain, by questioning, the ailment of the individual seeking his aid, and thereupon prescribing a remedy."

The following papers had been prepared, but could not be read for want of time:

Which Kinds of Cinchona Bark should be used in Pharmacy? By E. M. Holmes, London.

Two other communicatious on the same subject. By W. de Neufville, London, and — Rijk, Amsterdam.

Conservation des Substances Sèches. Par L. Cornélis, Diest.

Medico-Pharmaceutical Specialties. By F. Eder, Brunn.

Note sur la Mousse de Corse des Pharmaciens. Par Felix Bignone, Genoa.

Note on Some Indian Remedies. By Kanny Loll Dey, Calcutta.

Investigation on Succus Glycyrrhizæ, particularly as regards the Amount of Gum contained in it. By H. P. Madsen, Copenhagen.

The following resolutions as to an International Pharmacopœia were read, and carried unanimously:

"1. The Fifth International Pharmaceutical Congress, held in London, confirms the resolution passed at the previous Congresses as to the utility of a universal pharmacopœia, but is of opinion that it is necessary at once to appoint a commission, consisting of two delegates from each of the countries represented at this Congress, which should prepare, within the shortest possible time, a compilation in which the strength of all potent drugs and their preparations is equalized.

"2. The Executive Committee of this Congress is requested to take the necessary steps that the resolution be speedily carried out.

"3. The work, when ready, should be handed over by the delegates to their respective governments or their pharmaceutical committees.

"4. It is desirable that the committee suggest a uniform systematic Latin nomenclature for the pharmacopœias of all countries.

"5. It is desirable that the committee take measures that an official Latin translation be made of the pharmacopœias of different countries which are now not published in that language.

"6. It is desirable that the committee be put in possession of all the manuscripts, including the documents relating to the Universal Pharmacopœia, compiled by the labors of the Society of Pharmacists of Paris, presented at the fourth meeting of the International Congress at St. Petersburg by the Society of Pharmacists of Paris."

"7. That the pharmaceutical societies of the respective countries be requested to nominate those members of the Commission not appointed by this Congress, and to fill up any vacancies which may arise from time to time."

The list of delegates appointed is as follows:

Austria: Messrs. Dittrich and Waldheim.

Belgium: Messrs. Gille and Cornélis.

Denmark: Messrs. Lotze and Madsen.

France: Messrs. Méhu and Petit.

Germany: Messrs. Brunnengräber and Carl Schacht.

Great Britain: Messrs. Redwood and Peter Squire.

Hungary: Mr. Jarmay and another to be elected by the local society.

Ireland: Two to be chosen by the Pharmaceutical Society.

Italy: Mr. Sinimberghi and another to be chosen.

Sweden and Norway: Messrs. Sebardt and Hansen.

Russia: Messrs. Martenson and Poehl.

Switzerland: Mr. Schaer and another to be chosen.

The United States: Mr. Maisch and another to be chosen.

An official invitation had been received from Mr. Shinn, of Philadelphia, the President of the American Pharmaceutical Association, to hold the next meeting of the Congress in the United States; but upon the recommendation of the officers it was decided that the Congress hold its next meeting at Brussels, in 1884.

The President then delivered an admirable concluding address and, after expressions of thanks, the Congress closed.

## THE BRITISH PHARMACEUTICAL CONFERENCE.

The meeting of the British Pharmaceutical Conference for 1881, which has been held Aug. 30th to Sept. 1st in the city of York, may be regarded as one of special interest, since it has been held on the occasion of the jubilee meeting of the British Association, from which it is an offshoot, and at a time when speculation is rife concerning the continued existence of the parent association.

Under these circumstances, and inasmuch as the British Association was inaugurated at York, it is natural that the President of the Conference should, in his address, refer to the formation of that body, and show that one among those who took part in that work was a pharmacist of the town of Leeds, whom he had succeeded in that capacity, as well as in the office of honorary secretary of the Philosophical and Literary Society of that town.

If it be, as some suppose, full time that the British Association should henceforth rank with things that are no more, it becomes important to consider how the Pharmaceutical Conference will be able to maintain an isolated existence in the future without the aid of such support as has been afforded by the coincidence of its meetings with those of the British Association. Referring to the financial statement as a means of arriving at a conclusion on this point, we find that, leaving out of account the receipts for sales of the "Year-Book" and for advertisements inserted in it, the cost of the "Year-Book" has been within £76 of the amount of the income arising from subscriptions and investments. During the last year there has been no increase of the invested funds of the Conference, but there has been an addition made to the items of expenditure by the appointment of a paid secretary, and, although this increase only applies to a part of the past year, the total expenditure has been within about £12 of the total income. It appears, therefore, that even including the receipts for advertisements, which it has been determined to continue to admit, there will be a necessity for augmenting by some means the annual income. In regard to the probability of such an increase, it may be mentioned that since the last annual meeting there has been a considerable accession of new members, but the number is still much less than what might be expected from a consideration of the various individual advantages to be derived from membership of the Conference. The other points referred to in the Report of the Executive Committee do not call for any particular comment.

Referring to the address of the President, the editor of the "Phar. Jour." cannot avoid expressing surprise at the statement that prosecutions of chemists and druggists for the sale of adulterated drugs have at any recent time been of very frequent occurrence. It is true that the President of the Conference is not responsible for that statement further than that, by reproducing it as a quotation from a report of the Executive of the Chemists and Druggists' Trade Association, he has given it an enhanced importance. For this reason alone we think it desirable to say that we cannot regard

the statement as being consistent with the facts of the case. Another point to which we might take exception is the remark referring to the recent legal decision in the litigation by which the Council of the Pharmaceutical Society has endeavored to uphold the principle of the Pharmacy Act, 1868. Before it can justly be asserted that an earlier challenge of the law-breakers would have been attended with a different result, it should be remembered that the opinion of the highest legal authorities pointed decidedly in the opposite direction. But, although in regard to these points we feel compelled to express some dissent from what may be inferred from the passages referred to, there are other suggestions in the Presidential Address with which we cordially concur, especially that which points to the need of greater discipline among pharmacists, the establishment of a common aim and of more united efforts to attain it. Again, as to the means by which future pharmacists are to attain their scientific and technical education, the President has done good service by pointing out that there are already in several important centers of large populations opportunities for obtaining thorough instruction in chemistry and such other scientific subjects as are necessary; opportunities that are offered under conditions which reduce almost to absurdity the outcries that are sometimes made for the establishment of provincial scientific schools by the Pharmaceutical Society. With these few cursory remarks, we commend the address of the President to the careful consideration of our readers.

The reading of the papers commenced by the presentation of a report on *Essential Oil of Ginger* by Mr. Thresh, showing that this oil is an exceedingly complex mixture of hydrocarbons, together with products of their oxidation. The odorous principle is contained in the more volatile portion, which is most susceptible of oxidation, and Mr. Thresh considers that the substance possessing the odor is most probably an oxygenated compound. He regards the soft, resinous, fragrant deposit, which gradually collects on the lid of a jar of ground ginger, as being a product of the oxidation of oil that volatilizes at ordinary temperatures, and condenses on the lid. One sample of the oil examined was prepared by the author from ethereal extract of Jamaica ginger, supplied by Messrs. Wright, Layman and Umney; the other was from a foreign source. Both were found to consist of hydrocarbons, probably having the formula $C_{15}H_{24}$, but the hydrocarbon of the English oil was isomeric with that of the foreign oil, the former boiling at a higher temperature than the latter, and differing from it by its action on polarized light. Cymene is one of the constituents of the distilled oil, and most probably of the crude oils, unless some substance having the composition $C_{10}H_{16}O$ is decomposed by the action of heat, yielding water and cymene, as suggested by Wright. The portions boiling below 161°C. consist chiefly of a terpene, which would probably be found to correspond with those of Tilden's first group if further purified. The crude oil also contains a little formic and acetic acids, but no notable quantity of aldehyds or ethereal salts. A dilute alcoholic solution of ginger oil is capable of imparting to a considerable quantity of aqueous liquid the pleasant aroma of Jamaica ginger, and in that form it is a good flavoring agent. In the discussion that followed the reading of this paper, Professor

Attfield called attention to the necessity of having some guarantee as to the genuineness of materials operated upon, and this appeared to be indicated in the present case by the different results obtained. In answer to a remark by Mr. Proctor to the effect that he had sometimes noticed an odor suggestive of lemons in preparing oil of ginger, Mr. Thresh said that was probably attributable to the cymene present in the oil. He had tried various proposed modifications of his formula for soluble essence of ginger, but had not hitherto been able to improve it. The use of dilute spirit was recommended by Mr. Groves, to obtain a preparation sufficiently clear for practical use in flavoring aerated water.

The next paper was by Mr. Groves, on *Glycelæum*, a preparation proposed by him as a basis for ointments, at the Dundee meeting of the Conference ("Amer. Journ. Pharm.," 1863, p. 56). Since that time he has found that the meal of the bitter almond answers nearly as well as that of the sweet almond, and he has also altered his formula by the substitution of diluted glycerin for the concentrated, which, from its aptness to absorb moisture from the surface to which it is applied, might cause irritation. Most oils can be made to combine with half their volume of the emulsive by merely stirring in a mortar, and a much larger proportion of oil can be combined by using a flexible spatula. Castor oil, however, refuses to combine. Mr. Groves pointed out an error in his former paper, where he assumed that glycelæum might be stiffened by the addition of chemically inert powders. He has since found that the addition of such powders, when sufficient to affect the consistency of the emulsion, separates the constituents in a liquid form. Mr. Groves expressed his regret that so little attention had been paid to this matter. Possibly owing to the absence of any "man of emulsions," this paper did not excite much discussion.

Another paper by Mr. Groves, on *Poppy Heads*, was prefaced by a complaint that in the Conference paper containing subjects for papers it is stated that nothing definite appears to be known as to the occurrence in poppy capsules of other principles besides morphia, narcotin and meconic acid, although in 1854 he had announced the finding of codeia and narceia in them. His chief object in repeating his experiments was to ascertain whether codeia could be profitably extracted from the unripe poppy capsule. The result was unfavorable by reason of the small total amount present, and the considerable loss in extraction and purification.

In the papers by Messrs. Naylor and Hooper a modification of Personne's method of *Determining Iodide of Potassium* ("Pharm. Journ." [3], vol. v, p. 606) was proposed as a substitute for the method hitherto in use for the determination of ferrous iodide. The authors found by experiment that the method is applicable for this purpose by using a semi-decinormal test solution of mercuric chloride, 100 cc. containing 1·355 of that salt and being equivalent to 2·5 grams of iodide. The end of the reaction is indicated by the appearance of a slight permanent precipitate, giving a scarlet color to the liquid. According to comparative results obtained in a number of determinations by this method and the gravimetric method, it appears to admit of considerable accuracy. The presence of sugar does not appear to present any obstacle to the accurate determination of iodide

of iron by this method. The examination of twelve samples of commercial syrup of iodide of iron showed that the amount of ferrous iodide varied from 2¾ grains to rather more than 4 grains in a fluidrachm. The cause of the deficiency in some of these instances the authors propose to deal with on a future occasion. Mr. M. W. Williams suggested that a simple method of determining the amount of iodides in solution might be devised on the basis of the dark coloration produced on the addition of bichloride of platinum, carrying this out after the manner of the Nessler test for ammonia.

Mr. Merck, of Darmstadt, contributed a paper on the *Proximate Principles of Henbane*, in which, at the request of the President, he stated the present condition of our knowledge of them. The principal facts contained in this paper have already been stated in the "Month" ("Phar. Jour." [3], vol. xi, p. 351, and vol. xii, p. 179).

In the paper by Mr. Benger on the *Pharmacopœia Test for Pepsin* various suggestions were offered for removing the defects of that test. In order to remedy its tediousness, Mr. Benger recommended that the temperature should be raised to 130°F., at which point, as already observed by M. Petit, the action of pepsin is very much more rapid than at 98°F. He also recommended that the coagulated white of egg should be used in a state of finer and more definite subdivision than that described as "thin shavings." For that purpose he recommends that, according to Mr. Dowdeswell's plan, the white of egg should be passed through wire gauze made of No. 32 (Birmingham wire-gauge) copper wire and containing 36 meshes to the linear inch. The acid he uses has a strength of about 0·3 per cent. of HCl. Operating in this way, and observing certain minute details 2 grains of an active pepsin should almost entirely dissolve 100 grains of white of egg in twenty minutes, instead of the four hours required by the Pharmacopœia test. Professor Attfield pointed out that the temperature recommended was much higher than that of the stomach, and Dr. Symes suggested that the doubt thus raised as to the test should be settled by making comparative tests at the two temperatures. Mr. Benger stated that he had already done this and found that the pepsins that were most active at the higher temperature were also the most active at the lower. Mr. M. W. Williams remarked that the acid of the stomach was not generally admitted to be hydrochloric acid, but however that may be, it is worth noting that M. Petit has shown ("Amer. Journ. Pharm.," 1880, p. 155) that hydrochloric acid is the most favorable to the action of pepsin.

Professor Attfield's paper on "*Copying Ink for Readily Transcribing Letters Without a Copying Press*," described his experience of the use of ink made by evaporating any ordinary ink to rather more than one-half, and then making up the original volume with glycerine. A firm of manufacturers had entertained his suggestion to use such an ink as this and went to the expense of provisionally patenting it, in the hope of rendering it an ordinary commercial article, but the project has long been abandoned and found sufficiently impracticable to admit of its publication. Professor Attfield has found the ink really valuable to himself and thinks it may also prove serviceable to others.

The note on *Tests for Nitrates in Potable Water*, by Mr. Ekin, described

the results of a comparison of the old potassium iodide and starch test with the metaphenylaminediamin and the naphthylamin tests for nitrous acid. He found that a solution containing 1 part of nitrogen as nitrous acid in a hundred millions gives with the potassium iodide test a distinct blue in twelve hours, and 1 part in ten millions gives the color in a few minutes, showing that this test has at least delicacy equal to the naphthylamin test. In regard to the significance of the presence of nitrous acid in water, Mr. Ekin remarked that the importance of estimating nitrites is not sufficiently realized, some analysts omitting to determine them separately, while others disregard them altogether. He, on the contrary, considers this determination to be one of the most important items of water analysis, having never met with well or spring water containing nitrites that was not proved to be unfit for drinking purposes, nor any such water known to be unpolluted which yields even a trace of nitrites. He was not sure now far this applied to river water, but after frequent examination of water containing nitrates, from uncontaminated streams in which aquatic vegetation was abundant, he had never detected the presence of nitrites, although from the presence of nitrous acid in rain water it might reasonably be supposed that the water of rivers and open reservoirs would give evidence of their presence. Mr. J. Williams referred to the liability to error arising from the presence of iodate in the iodide of potassium and chlorine in hydrochloric acid, which he had found it impossible to get rid of entirely. Mr. Groves asked whether the liberation of iodine might not be due to the presence of iron in the ferric state. Mr. M. W. Williams expressed the opinion that the presence of nitrites showed that the contamination by organic matter was very recent. Prof. Attfield said that he had recognized the presence of nitrites in water from deep wells in which no organic matter could be detected, and he referred to the observation by Mr. Deane, that old infusion of senna gave off nitrous fumes when mixed with sulphuric acid, as showing the reducing action of organic matter upon nitrates. In reply, Mr. Ekin expressed the opinion that the organic nitrogen was always first converted into ammonia, and then oxidized to nitrates, and that nitrites always resulted from reduction. In regard to the possibility of error arising from the presence of impurities in the test, he stated that this had been provided against by making blank experiments, and as to the alleged presence of nitrites in water from deep wells, he said if Prof. Attfield would specify the locality he would be willing to travel a few hundred miles to obtain evidence of the fact.

In a note on the *Solubility of Carbonic Anhydride in Certain Aromatic Waters*, Mr. C. H. Bothamley described the results of some experiments made to ascertain whether carbonic anhydride is more soluble in peppermint than in pure water. He found that the difference was very slight. This was also the case with dill water. With cinnamon water a somewhat more marked increase of solubility was observed. In comparing the quantities of carbonic anhydride given off from sodium bicarbonate and citric acid, dissolved respectively in distilled water and peppermint water, he found that more gas was given off from the mixture with aromatic water than when distilled water used; showing that, contrary to what has

been considered the case, the quantity of gas retained by the aromatic water is not greater than when distilled water is used. Mr. Siebold said he was surprised at these results, which were opposed to the generally received opinion, and he suggested that they might be due to the use of water prepared by agitation instead of being distilled; Mr. Abraham also suggested that the difference might have been due to the presence of air dissolved in the water. In reply, Mr. Bothamley said that any dissolved air would have been driven out of the water, as the gas had been passed through for seven hours. The president, in thanking Mr. Bothamley for his paper, which he said had now furnished a final solution of the question, remarked that the work had been done at the Yorkshire College, and in his opinion schools ought to contribute papers of this kind to the Conference; and, although in this case Mr. Siebold's illusion had been dispelled, he would be glad to see the practice more general.

The *Note on Oxide of Zinc*, by Mr. R. F. Reynolds, described the results of analyses made in the laboratory of the Yorkshire College to ascertain the amount of sulphuric acid in samples of oxide of zinc used in pharmacy. Hubbuck's oxide gave no trace of sulphuric acid. Another sample, said to be prepared by combustion of the metal, contained sulphuric acid equivalent to 2·455 per cent. of anhydrous zinc sulphate. Oxide of zinc prepared by precipitation with a large excess of sodium carbonate, and subsequent calcination gave distinct evidence of the presence of sulphuric acid. Another sample was prepared by precipitation with a large excess of sodium carbonate, and found to contain very much less sulphuric acid than the former, showing that by using a large excess of the alkali, and thoroughly washing with a filter-press, a practically pure product can be obtained. However, the great purity of Hubbuck's oxide is a strong recommendation of the process of combustion, and, in any case, if the oxide is prepared by other means it should not be less pure than Hubbuck's. Mr. Bothamley suggested that if a gas furnace had been used in the calcination the sulphuric acid might have been derived from that source by absorption.

The first day's proceedings were concluded by the reading of a *Note on Sulphate of Beberia*, by Mr. D. B. Dott. It gave a general description of the Pharmacopœia preparation as containing about 15 per cent. of water lost at 110°C., and 7·8 per cent. of $SO_3$, which was equivalent to 63·8 per cent. of beberia hydrate. The percentage of beberia is, however, much less, a large proportion of the sulphuric acid being combined with other alkaloids. The determination of the beberin is very difficult, owing to the impossibility of getting the hydrochloride to crystallize in the presence of the amorphous alkaloids. The author thinks there is good reason to believe that the amount of beberia in the "sulphate" is greater than Prof. Flückiger indicates ("Pharm. Journ." [2], vol. xi, p. 193), and he doubts whether, with our present knowledge, a better preparation of the bark could be obtained than the beberia "sulphate."

The proceedings of the second day commenced with the reading of a note by Mr. T. Greenish on *Some Samples of Jamaica-grown Jalap*, sent to the Curator of the Museum of the Pharmaceutical Society by Mr. D.

Morris, Director of the Botanical Gardens of Jamaica. One sample consisted of small tubers and another of slices of larger ones. The slices of the tubers had been dried by artificial heat, and they bore evidence of having been heated while still moist. The tubers lost 17·3 per cent. of water between 220° and 225°F., the slices 14·1 per cent. The tubers contained 8·27 per cent. of resin insoluble in ether (Mayer's "convolvulin") and 0·86 of resin soluble in ether. The sliced tubers contained 8·68 of insoluble resin and 1·21 of soluble resin, these amounts being in each case calculated on the dry substance, showing that Jamaica-grown jalap yields less resin than the average of good Mexican jalap, and that it approaches more nearly to that grown by Mr. Smith in the Botanical Gardens of Trinity College, Dublin ("Pharm. Journ." [2], vol. x, p. 549). Professor Tichborne said he considered the growth of large tubers of jalap to be a mistake, as he had always found them to be deficient in resin. Mr. Young, however, said that a Calcutta firm, in ordering jalap, had desired to be supplied with the largest obtainable tubers. It may be remarked that the tubers examined were the result of Mr. Hanbury's introduction of jalap into Jamaica in 1862.

Mr. Bradbury read a paper by Mr. Siebold and himself on the *Detection of Salicylic Acid in Urine*, by means of ferric chloride, detailing the precautions to be taken in order to obtain a satisfactory result.

A note by the same authors on the *Alleged Presence of Nicotin in Indian Hemp* was then read, in which they stated that they had failed to detect the presence of nicotin, but had reason to believe they had obtained an alkaloid peculiar to this material, which they intended to investigate further. In the discussion, Mr. Martindale pointed out the importance of applying a physiological test in cases of this kind. Mr. Groves doubted whether the results proved the existence of a volatile alkaloid as the active principle of Indian hemp, since the quantity obtained was too small to account for the activity of the drug. Mr. Thresh suggested that in isolating volatile alkaloids it was desirable not to use methylated spirit, and Mr. Gerrard agreed with Mr. Groves in thinking that the use of caustic soda was likely to bring about an alteration of any alkaloids that might be present.

Mr. Thresh read a paper by himself and Mr. Wright on *Commercial Specimens of Hydrobromic Acid*, showing that the acid made by Fothergill's process cannot be relied upon to contain more than 7 or 8 per cent. of free hydrobromic acid, and urging the necessity for the introduction of some authoritative method for preparing this acid of uniform strength.

In Mr. Fletcher's paper on the same subject, after reviewing the various processes that have been suggested, and pointing out their defects, he described a process adopted by himself, based upon the reaction of sulphuretted hydrogen upon bromine in the presence of water, which he had found to be easily carried out and in every way satisfactory for the manufacture of the acid in large quantities. In the discussion, Mr. Wellcome referred to the danger attending the use of Professor Markoe's process ("Amer. Jour. Phar.," 1875, p. 525, 529). Mr. Conroy remarked that care should always be taken to state the strength of the acid supplied for pharmaceutical uses. Mr. Martindale recommended cooling for the purifica-

tion of acid made by Fothergill's process, and that this kind should always be used in dispensing. Mr. Naylor said he thought sufficient notice had not been taken of the preparation of hydrobromic acid by the action of sulphuric acid on bromide of barium. Mr. Plowman said that when medical men were asked as to the strength of hydrobromic acid to be used they would reply that they meant the "usual thing." Mr. J. Williams was of opinion that hydrobromic acid should always be made in the form of gas and dissolved in water, so as to avoid distillation. Another mode of producing hydrobromic acid was by the action of bromine upon camphor, as in the preparation of monobrominated camphor, and if the demand for monobrominated camphor were sufficiently large, the formation of hydrobromic acid as a bye-product in making it would be a convenient source. The President remarked that this was one of many instances in which it would be convenient to fit the demand to the supply, but as he noticed there were many pure chemists present he would ask them whether they could suggest any better method of preparing hydrobromic acid. Professor Armstrong recommended the phosphorus method as suited to the purpose and not necessarily attended with danger. He also referred to the action of bromine upon some of the terpenes, and particularized lemon oil as yielding the largest amount, but his suggestion was scarcely one within the limits of practicability.

Professor Thorpe, in a note on *Glycerinum Acidi Gallici*, repeated a caution that has to be observed in the making of this preparation, and that has already been published in "Phar. Jour." [3], vol. xi, p. 1040, namely, to avoid the production of pyrogallic acid by excessive heat.

Dr. Symes read a paper on *Heavy Paraffin Oil*, pointing out that it is an excellent emollient when applied to the skin, and from its other characters adapted for use as a vehicle for various active remedies. It dissolves half its weight of camphor; also carbolic acid, thymol and menthol. It may be substituted with advantage for almond oil in making simple ointment and may be applied to various other pharmaceutical purposes. Professor Armstrong expressed a doubt as to a statement by the author that paraffin oil is optically active, as it would be an exception to the rest of the products of destructive distillation. Professors Thorpe and Tilden concurred in this view, but Mr. Conroy appropriately pointed out that it could not well be taken for granted that the heavy portion of petroleum was a product of destructive distillation.

The next paper, by Mr. Woodland, described the results of experiments made upon the *Barks of Cinnamon and Cassia*, and the oils extracted therefrom, which showed that the decolorization of iodide of starch by a decoction of cinnamon or cassia bark is due to the absorption of iodine by the volatile oils. He has successfully endeavored to apply this reaction for ascertaining the amount of oil in the respective barks, and has also been able to distinguish between oil of cassia and oil of cinnamen by the orange or dirty green color produced by the action of nitric acid, and sufficiently to detect the admixture of one with the other.

Mr. Gerrard's papers on an *Improved Process for the Extraction of Atropin*, and the *Amount of Atropine in Different Parts of the Wild and Culti-*

*vated Belladonna Plants*, showed that the wild plant is the most active in all its parts and that the leaf of both kinds contains the largest amount of alkaloid. The chief features of Mr. Gerrard's method of extraction are, avoiding the use of acid in the extraction, and that of alkalies for liberating the alkaloid, so as to prevent any alteration of the substance to be extracted.

The paper announced to be read by Mr. A. H. Allen, entitled *Further Notes on Shale and Petroleum Products*, was not forthcoming, but Mr. Allen gave a *viva voce* account of some experiments to show that the hydrocarbons of shale and of petroleum were somewhat unequally affected by bromine and by sulphuric acid, and he appeared to consider that there was something of novelty attaching to the observation of those facts.

In a paper on *Red Bark* Mr. John Eliot Howard adopted the distinction made by Professor Karsten between the genera *Cinchona* and *Cinchinchona*, namely, that in the former the capsules are dehiscent from the apex and in the latter from the base, and described what was to be understood by the term "red bark." *Cinchona succirubra*, the true species of the red bark, was so named by Pavon to denote the peculiarities of the juice. Like other species, it exists under somewhat different forms (illustrated by specimens that were exhibited), and the differences, though apparently trivial, are important to the cultivator for reasons that have been explained in the "Nueva Quinologia," and on account of the relative preponderance of quinia or cinchonia and cinchonidia. Specimens of genuine red bark and of the more resinous sort which used to be imported from South America and sold at a high price, though useless to the quinia manufacturer, were exhibited to illustrate the state of degeneration to which Mr. Howard predicts that the truest of red bark in India will arrive by age, and towards which Mr. Broughton believed some advance was made during the continuance of his observations. Since that time Mr. Howard has had the opportunity of examining specimens of much more mature bark carefully collected by Mr. Cross at Ootacamund, and exhibiting the true characteristics of genuine red bark. These samples contained respectively 0·86 and 0·91 per cent. of quinia, with 1·5 to 2·0 per cent. of cinchonidia, and 3·5 to 4·0 per cent. of cinchonia. In reporting upon these barks to the Marquis of Hartington Mr. Howard pointed out that they are most characteristic specimens, well illustrating the mistake of the excessive cultivation of *C. succirubra*, and that it is only by renewing that the bark of such trees can be made serviceable. Another sample described as red bark is not from *C. succirubra*, but is the produce of a tree yielding juice that becomes only golden colored, and identified by Cross as "Pata de Gallinazo." That it is a much better sort for cultivation than the *C. succirubra*, with which it has been confounded, is shown by its containing 2·25 per cent. of quinia. The full information upon both these barks, which was published by Mr. Howard and sent out by the government in 1862, has apparently been without result, as these two species are still confounded under the name *C. succirubra*. There is also a third species confounded under this head, the "cucharia," or "pig-skin" sort of red bark, little valued formerly by reason of its poor appearance; but in regard to con-

tents in alkaloid more valuable than the true red bark, as it contains from 1·37 to 2·14 per cent. of quinia. The propagation of so many millions of trees of what is called *C. succirubra* in India, in spite of the warnings and of the information gathered from the Spanish botanists, strongly impresses Mr. Howard with the question whether the information he is now giving, or may be able to render hereafter, will be turned to any account otherwise than amongst those private cultivators who gladly avail themselves of such assistance, and who will find eventually that they have done well to attend to the careful discrimination of species and forms of species by cultivating only those most adapted to their purpose.

A paper by Mr. Holmes, raising the question which kinds of *Cinchona Bark should be used in Pharmacy*, pointed out that the kinds of bark now cultivated in Java, India, Ceylon and Jamaica, have been for years a regular article of commerce, but are not recognized in the Pharmacopœias, and cannot therefore be used for pharmaceutical purposes, although the officinal bark of South American origin is often comparatively worthless, and very rarely of good quality. Mr. Holmes suggested that cultivated cinchona bark should replace the barks now officinal, partly because the latter are often mixed with false barks, and the bark of the hybrid species is not unfrequently mixed with that of good quality, as it is not to be distinguished by external characters except by experts. Mr. Holmes pointed out that one variety of cinchona bark, that of *C. succirubra*, is easily obtainable in almost unlimited quantity, and of very good quality, owing to the circumstances that the tree grows at a lower elevation, is very hardy, easily propagated, and cultivated over a much greater area than other kinds. Owing to the relatively small proportion of quinia that it contains, as compared with the other alkaloids, it is not adapted for the requirements of quinia makers. For these reasons, Mr. Holmes is of opinion that, as already suggested by Professor Flückiger, the bark of *C. succirubra* seems to be the most suitable for use in medicine and pharmacy. Mr. Holmes also suggested that purchasers should require from wholesale dealers a statement of the percentage of alkaloids in the barks supplied to them, in order that pharmaceutical preparations, when made from bark thus guaranteed, should be of satisfactory quality. As regards the strength of the fluid extract, if made from the red bark according to the British Pharmacopœia, it would in all probability deposit some of its active constituents, and it might be desirable to adopt the strength of the United States Pharmacopœia, which is one-fourth that of the British. Mr. Holmes considers that neither the decoction nor the infusion of cinchona bark possesses any advantage over the fluid extract, and that it would be a boon both to the patient and the dispenser if these preparations could be superseded by it. As regards the simple tincture, which differs in strength according to the British, United States, French and German Pharmacopœias, an equalization, or at least an approach to uniformity, is desirable, and as regards the compound tincture, which contains, according to the British formula, saffron and cochineal, according to the German and five others, cinnamon and gentian, it is desirable to consider whether these ingredients should be retained or not.

Mr. W. de Neufville, in a paper upon the same subject, took exception to the statement of Professor Flückiger that flat calisaya, or the yellow bark of the British Pharmacopœia, is more scantily and less regularly imported than hitherto. On the contrary, he asserts that during the last few years the supply of this bark has so considerably increased that the drug trade has not been capable of absorbing it. As regards the regularity of importation, even during the late Peruvian war the shipments of calisaya bark have been, contrary to the assumption of Professor Flückiger, more constant than those of barks from the northern districts of South America, the supply from which has sometimes failed altogether, owing to the frequent drought of the Magdalena and other rivers. As opposed to the recommendation to supersede South American by Indian-grown barks, Mr. de Neufville pointed out that the planting and cultivation of cinchonas has already been commenced in Bolivia and Peru and that the results have been very satisfactory, the produce of these plantations having been sold for high prices in the London market during the last two years. Mr. de Neufville also urged that if the flat calisaya of American origin is to be abandoned, because it does not contain sufficient quinia, there is no reason why the American calisaya quill bark should not take its place, since it is rich in quinia, contains a good proportion of other alkaloids, and is easy to work.

In the discussion that followed the reading of these three papers Mr. Wellcome suggested that, in view of the difficulty attending the separation of the cinchona alkaloids, the percentage of total alkaloids should be taken as an index of the value of a bark. Mr. Brady said the thanks of the Conference were due to Mr. Howard for having brought this subject forward by the contribution of his paper and the interesting illustrations by which it was accompanied. Dr. Paul, being called upon by the President to offer some remarks upon the subject, said no doubt it was a very general opinion that there was need of making some alteration as to the kind of bark that should be officinal in the Pharmacopœia. The only question seemed to be what kind or kinds of bark should be chosen for pharmaceutical purposes. He did not agree with the suggestion that American bark should be entirely superseded by that of Indian growth, although the excellent qualities of Indian "crown" and red bark rendered their introduction desirable. The Indian red bark was already coming largely into use on the Continent, and it, together with the American quill calisaya, would satisfy all requirements.

A note on the *Crystallization of Orthophosphoric Acid*, by Mr. H. P. Cooper, referred to the preparation of the acid in this form as by no means a novelty, though no attempt has been made to produce it commercially, owing probably to some doubt as to the conditions necessary for the purpose. In the hope of removing that uncertainty Mr. Cooper started with a solution of orthophosphoric acid 1·75 sp. gr., evaporated at a gentle heat in a platinum basin, and after testing for metaphosphoric acid with negative results, set the concentrated liquor aside in closely stoppered vessels. After repeated trials with liquids varying in concentration, he at length found that an acid of 1·875 sp. gr. gelatinized after standing about twelve

hours, but the product contained pyrophosphoric and metaphosphoric acids in abundance, so that it was evident the concentration had been carried too far. In the solutions of lower gravity no crystals had made their appearance at the end of a fortnight; but on dropping a crystal of sodium sulphate into a solution of 1·85 sp. gr. prismatic crystals immediately commenced to form and grew until the contents of the bottle became almost solid. The smallest fragment of these crystals would induce immediate crystallization in a large bulk of solution of 1·85 sp. gr.

The last paper read was by Mr. Madsen on "*Succus Glycyrrhizæ*," particularly as regards the amount of gum contained in it. In preparing a mixture of the liquor pectoralis and the tinctura opii benzoica of the Danish Pharmacopœia, Mr. Madsen happened to observe that he could not obtain it as clear as usual. The appearance of the mixture suggested to him the presence of gum, and as he had heard that gum is added to liquorice in making the extract, he commenced an examination of liquorice bought at different places and bearing the mark "Baracco." Aqueous solutions of these extracts were mixed with 0·830 alcohol. The precipitates collected, washed with alcohol, dried and weighed, varied from 19 to 45 per cent. These precipitates contained, besides gum, albuminates and a great deal of coloring matter and, after some preliminary trials, Mr. Madsen adopted the following method for determining the amount of gum: The alcohol precipitate was washed with alcohol until all sugar reaction had disappeared, dissolved in the smallest possible quantity of water, mixed with cupric sulphate and soda solutions until alkaline. The precipitate was washed with soda solution until the albuminates and coloring matter had been removed. The undissolved portion was then treated with dilute sulphuric acid and, after adding alcohol, the precipitated arabin was dried and weighed with some precautions to insure the removal of copper and ash constituents. Operating in this way, Mr. Madsen found in ten samples of liquorice amounts of arabin varying from 1·19 to 10·49 per cent., results which led him to infer that in some cases gum had been intentionally added to give the liquorice a fine appearance, a proceeding which rendered it useless for pharmaceutical purposes. Some of these samples also proved to be adulterated with starch as well as gum.

In giving the above brief summary of the papers read at the York Pharmaceutical Conference, we regret having occasion to state that our anticipations as to the probably unusual character of the paper announced by Mr. Barnard Proctor under the title of "Pharmaceutical Remuneration in Relation to Pharmaceutical Progress," have been so far realized that the paper was not read at the meeting. But having since then had an opportunity of reading Mr. Proctor's paper, we are thereby confirmed in the opinion previously expressed that Mr. Proctor's treatment of the subject of pharmaceutical remuneration would be very interesting.

An invitation was then received through Mr. Chipperfield from the pharmacists of Southampton and the neighborhood that the Conference should meet in that town next year, and it was unanimously resolved to accept the invitation. Mr. Brady then moved a vote of thanks to the

Local Committee, particularizing the names of Messrs. Davison, Clark, Dresser and Sowray, who had taken so much trouble in carrying out the arrangements for the reception of the Conference and for the hospitality displayed. The motion was seconded by Mr. Ekin and carried by acclamation. Mr. Davison, in acknowledging the vote, spoke of the pleasure with which he had seen so many of the younger members of the Conference taking part in the proceedings and hoped that others would be thereby encouraged to come forward. He thought that in the present day, when so many articles were the subject of special preparation, every pharmacist should be able to test the nature and quality of the articles with which he was dealing. Having acted some years as Superintendent of the Preliminary Examinations, he was often pained to see so many young men fail, from having proved incompetent to test their own ability, and who never appeared again. Mr. Clark said much of the success of the meeting had been due to the President.

The election by ballot of officers for 1881–82 next took place with the following result: President, Professor Attfield, Ph.D., F.R.S., F.I.C., F.C.S. Vice-Presidents—R. Chipperfield, Southampton; Thomas Greenish, F.C.S., F.R.M.S., London; Professor Tichborne, LL.D., F.C.S., Dublin; J. R. Young, Edinburgh. Treasurer, C. Ekin, F.C.S., Hounslow. General Secretaries—F. Baden Benger, F.C.S., Manchester; Michael Carteighe, F.I.C., F.C.S., London. Other Members of Executive Committee—Alexander Kinnimont, F.C.S., Glasgow; J. C. C. Payne, Belfast; Sidney Plowman, F.I.C., F.C.S., London; W. B. Randall, F.C.S., Southampton; P. W. Squire, London; Charles Symes, Ph.D., F.C.S., Liverpool; G. S. Taylor, F.C.S., London; J. C. Thresh, B.Sc., F.C.S., Buxton; C. Umney, F.I.C., F.C.S., London. Local Secretary, O. R. Dawson, Southampton. Auditors—R. Dresser, York; James Spearing, Southampton.

Unanimous votes of thanks were then passed to Messrs. Terry & Sons and the Yorkshire Glass Company for their kindness in allowing the members to inspect their works; to Messrs. Backhouse & Sons for permission to visit their nurseries; to the Governor (Mr. Alderman Terry), Wardens and Court of the Merchants' Company for the use of their rooms, and also to the Yorkshire Philosophical Society for granting free admission to the museum and gardens. The proceedings terminated with a hearty vote of thanks to the President for the courteous and able manner in which he had conducted the business of the Conference.

On Thursday, by the invitation of the Local Committee, a party of one hundred and forty, including many ladies, proceeded on an excursion to Ripon and Fountains Abbey. Fortunately no rain fell throughout the day, but the weather was very cold and the sky was obscured by clouds. At 10.30 a special train conveyed the party from York, and after stopping at Starbeck only to pick up friends from Harrogate, arrived promptly at Ripon at 11.40. Among the many pleasant views on the road that of Knaresborough, picturesquely situated on the river Nidd, was perhaps the most admired. Conveyances were waiting at the station to take the visitors at once to the cathedral. Here a most courteous guide pointed out the chief beauties and curiosities of the noble pile. After the various styles

of architecture had been much admired, St. Wilfrid's Needle was visited. This is a crypt under the centre tower entered by a long narrow passage. On one side is an opening eighteen inches by twelve, which communicates with another passage, and through this were drawn, in olden times, damsels of doubtful chastity as a test of their fair fame. Now it is said that any maiden "threading the needle" will gain a husband before the end of another year and a married lady would lose her husband, if a bad one, within the same time. Many ladies of the party laughingly went through the ordeal. Lunch was provided at the "Unicorn," at 1 P.M., and conveyances were again in readiness to convey the party to Fountains Abbey. A party of the more vigorous walked across the fields through the village of Studley and the park to the grounds. Many charming views of the country were obtained from various parts of vantage in the grounds, and in particular one from a seat called "The Surprise," from which the valley of the Skell, with the Abbey, was seen to the greatest advantage. The Abbey ruins were finally reached and impressed every one by their magnificence and extent. The cloister, the refectory, the quadrangular court, the nave and transept in the tower were closely examined, and after the whole party had been photographed they returned to the lodge, where the same conveyances were found in readiness to take them back to Ripon. During the walk to the lodge the magnificent Norway pines and American spruces were much admired. At 5.30 high tea was served at the "Unicorn" at Ripon, to which ample justice was done. After tea Professor Attfield proposed a vote of thanks to the Local Committee for the admirable manner in which they had carried out the arrangements and had thus secured the utmost enjoyment for their visitors. This was seconded by Mr. Schacht and carried by acclamation. Messrs. Davison, Dresser, Clark and Sowray responded in appropriate terms, and Mr. Reynolds was also called upon to reply in the double capacity of President of the last Conference and as an energetic local helper. The proceedings were enlivened by songs by Messrs. Stanford, Plowman, Hills, Hughes and Allen, and, on breaking up, the party were conveyed to the station where a special train was waiting to take them to York. This was safely reached a little before nine, and the party dispersed, every member delighted with the excursion and carrying away the most pleasant reminiscences of Ripon and Fountains Abbey.—*Phar. Jour. and Trans.*, Sept. 3, 1881.

## PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

ALUMNI ASSOCIATION, ST. LOUIS COLLEGE OF PHARMACY.—At the board meeting, held August 11th, the subject of an alumni medal was discussed and it was decided that it should be awarded only to one who is entitled to a certificate of graduation.

PHARMACEUTICAL SOCIETY OF NEW SOUTH WALES.—The fifth annual meeting was held in Sydney, June 8th, Mr. F. Senior, President, in the

chair. The finances are in good condition; besides a handsome balance in bank, £200 have been invested. The library contains a good selection of works on materia medica, pharmacy, chemistry and toxicology. A pharmacy bill is in course of preparation and is expected to pass. Under the auspices of the society, a course of free lectures is being delivered by Mr. Fred. Wright, and arrangements have been made for supplying the members with the "London Chemist and Druggist," free.

## REVIEWS AND BIBLIOGRAPHICAL NOTICES.

*Proceedings of the Pennsylvania Pharmaceutical Association* at its fourth annual meeting, held in Williamsport June 14 and 15, 1881. Harrisburg, 1881. 8vo, pp. 160.

A full account of this meeting, with abstracts of the papers read, was published in our July number (pp. 376–381). The pamphlet gives evidence of a good amount of substantial work done by the Association.

*General Medical Chemistry for the Use of Practitioners of Medicine.* By R. A. Witthaus, A.M., M.D., Professor of Chemistry and Toxicology in the Medical Department of the University of Vermont, etc. New York: Wm. Wood & Co. 1881. 8vo, pp. 443.

The introductory portion treats, upon 32 pages, of chemical philosophy. Under the heading of Special Chemistry, the elements are arranged in four classes, the first comprising the typical elements oxygen and hydrogen; the second class those whose oxides unite with water to form acids (non-metallic elements, metalloids); the third class those elements whose oxides unite with water, some to form bases, others to form acids (most of the heavy metals), and the fourth class those elements whose oxides unite with water to form bases only (chiefly the metals of the alkalies and alkaline earths). The organic compounds which are in most works, on account of greater convenience, considered after the elements and their inorganic combinations, are in the work before us placed under carbon and considered as carbon compounds. This arrangement is undoubtedly the true logical one, as stated by the author in the preface; but whether it is the most convenient for the student there is good ground for holding different views. However, the work is, according to the title, not so much intended for the student as rather for the practitioner of medicine, and accordingly the technical processes have been condensed to a minimum, while the bearing of chemistry upon physiology, hygiene, therapeutics and toxicology have been treated of as fully as the limits of the work have permitted. The chapters on alcohol and alcoholic beverages, on ethers, on biliary and other acids, on the constituents of urine, on the sugars, albuminoids, animal coloring matters, etc., will be found particularly useful and instructive. In the chapter on alkaloids, we would suggest that those of the solanaceæ and from other sources (atropia, veratria, aconitia, etc.), as well as quinidia and cinchonidia, and perhaps also chinoidine, seem to deserve a fuller

account than has been accorded to them. The chapters on the metals proper are likewise not as full as might be desired, the author having been obliged to condense that portion in consequence of a mistake of the printer in casting up the copy.

In summing up our view of the book, we heartily recommend it to all who are interested in medical chemistry. It is shorn of a good deal of that which is of interest only to the general chemist, and its aim at giving practical and useful information is evidenced almost upon every page. While the theoretical portion is brief, even for a work of this kind, it cannot be said to lack in fullnes or clearness.

We have seen little which does not agree with recent investigations. That portion of the resin of true jalap which is soluble in ether, dissolves in alkalies and is reprecipitated by acids, is therefore *not* identical with jalapin (p. 343). Cinchonia has the formula $C_{19}H_{22}N_2O$, determined by Laurent in 1848 and proven to be correct by the recent investigations of Skraup and Hesse.

The volume is a fit companion of the others issued as Wood's Library of Standard Medical Authors.

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*Ensayo Sobre la Acion Fisiologica y Therapeutica del Jaborandi.* Par Abel Gutierrez. Guatemala. Pp. 46.

On the Physiological and Therapeutical Action of Jaborandi.

A thesis presented to the Faculty of Medicine and Pharmacy of Guatemala for obtaining the title of Doctor in Medicine and Surgery.

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*Die Verhältnisse der Pharmacie in der Schweiz.* Statistik und Erläuternder Bericht über Reform des schweiz. Apothekerwesens. Schaffhausen: 1881. Pp. 42 and 6 tables.

The Condition of Pharmacy in Switzerland. Statistics and Explanatory Report on the Reform of Swiss Pharmacy.

The material contained in this pamphlet has been collected and elaborated by a committee of seven appointed by the Swiss Apothecaries' Society.

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*The Ohio Medical Journal.* J. F. Baldwin, M.D., Editor, Columbus, O. Monthly. Price, $1 per year. Cott & Hann, publishers.

This journal supersedes the "Ohio Medical Recorder" and has been designated as the official journal of the Ohio Medical Society, an arrangement which has worked very satisfactorily in Europe and appears to deserve the consideration and attention of the medical and pharmaceutical societies of this country.

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*Atlanta Medical Register.* J. F. Johnson, M.D. and J. B. Baird, M.D., editors. H. H. Dickson, publisher. Atlanta, Ga. Monthly. Price, $2.50 per year.

This is a new series of the "Atlanta Medical and Surgical Journal," it having been deemed advisable to change the title. Under its new management and title, the "Register" presents an attractive exterior and valuable reading matter.